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Budget

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## International Biological Program - Analysis of Ecosystems - Desert Biome - Budget

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**INTERNATIONAL BIOLOGICAL PROGRAM**

**Analysis of Ecosystems**

**DESERT BIOME**

**Budget**

**July 1970**

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## INTRODUCTION

The individual budgets for particular projects are presented in the following three sections, with the same section numbering as in the Proposal volume. Where more than one institution is involved in a single project, separate budgets are presented.

These project budgets are followed by summary budgets for each of the institutions involved in the program (Section 6). These are arranged state by state, the states being in alphabetical order, and the institutions in alphabetical order within each state.

Finally, a general summary budget for the whole program will be found in Section 7.



## Utah State University

## Central Office - Management and Administration

1/10 Man-Months -  
N.S.F. Grantee

	Cal Acad Su	Cal Acad Su	N.S.F.	N.S.F.	Grantee
<b>A. Salaries and Wages</b>					
<b>1. Senior Personnel</b>					
(a) Principal Investigator:					
Biome Director, D. W. Goodall, 50%	40	0	0	20	0
				9000.00	4500.00
(b) Faculty Associates:					
Deputy Director, F. H. Wagner, 50%	40	0	0	20	0
				8000.00	4000.00
<b>2. Other Personnel</b>					
(a) Non-Faculty Professionals, Doctoral:					
Editor, J. S. Bowns, 50%	60	0	0	0	0
				6000.00	0.0
(b) Non-Faculty Professionals, Other:					
Administrative Assistant, F. Walk, 75%	90	0	0	0	0
				9500.00	0.0
(c) Pre-Baccalaureate Students:					
Student Assistance	120	0	0	0	0
				3000.00	0.0
(d) Secretarial-Clerical:					
2 Secretaries	240	0	0	0	0
				8000.00	0.0
Subtotal				43500.00	
B. Fringe Benefits (10% Contract, 5% Payroll)				4200.00	850.00
D. Expendable Supplies					
Office Materials				5000.00	0.0
E. Travel					
1. Domestic Travel					
Travel for meetings etc., domestic				60000.00	0.0
2. International Travel					
Travel for meetings, etc., abroad				8000.00	0.0
Subtotal				68000.00	

	N.S.F.	Grantee
F. Publications	2000.00	0.0
G. Other Costs - Communications Costs	5000.00	0.0
H. Total Direct Costs	127700.00	9350.00
I. Indirect Costs, 54.45% of A	23685.74	4628.24
J. Total Costs	151385.74	13978.24

	1/10 Man-Months	N.S.F.	Grantee	Cal Acad Su	Cal Acad Su	N.S.F.	Grantee
G. Other Costs							
Consultants, Etc., Honoraria							
					10000.00		0.0
H. Total Direct Costs					10000.00		0.0
I. Indirect Costs, 54.45% of A					0.0		0.0
J. Total Costs					10000.00		0.0

## Utah State University

Central OfficeData Processing and Retrieval

	1/10 Man-Months N.S.F. Grantee										N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su						
<b>A. Salaries and Wages</b>												
2. Other Personnel												
(a) Non-Faculty Professionals, Other Professional Officer in Charge	120	0	0	0	0	0	0	0	0	0	18000.00	0.0
(b) Graduate Students												
2 Graduate Programmers, 50%	120	0	0	0	0	0	0	0	0	0	8000.00	0.0
(c) Pre-Baccalaureate Students												
Undergraduate Assistance	50	0	0	0	0	0	0	0	0	0	1500.00	0.0
(d) Secretarial-Clerical												
Key-Punch Operators, One Full Time and One Half Time	180	0	0	0	0	0	0	0	0	0	6000.00	0.0
Subtotal											33500.00	
<b>B. Fringe Benefits (10% Contract Personnel, 5% of Payroll)</b>												
											3275.00	0.0

## D. Expendable Supplies

Key-Punch Rental, One Full Time and One Half Time

N.S.F. 1350.00

Grantee 0.0

Computer Supplies

N.S.F. 2000.00

Grantee 0.0

Subtotal 3350.00

G. Other Costs  
Computer Costs (Computer Time)

N.S.F. 30000.00

Grantee 0.0

## H. Total Direct Costs

N.S.F. 70125.00

Grantee 0.0

## I. Indirect Costs, 54.45% of A

N.S.F. 18240.74

Grantee 0.0

## J. Total Costs

N.S.F. 88365.74

Grantee 0.0

Central OfficeFacilities

	1/10 Man-Months N.S.F. Grantee Cal Acad Su Cal Acad Su	N.S.F.	Grantee
C. Equipment and Permanent Facilities			
Teletype Terminal	1000.00		0.0
Plotter/Controller	11000.00		0.0
Subtotal	12000.00		
D. Expendable Supplies			
Rental For Data Phone	625.00		0.0
H. Total Direct Costs	12625.00		0.0
I. Indirect Costs, 54.45% of A	0.0		0.0
J. Total Costs	12625.00		0.0

-- Central Office - Model Development

Utah State University

A. Salaries and Wages

	1/10 - Man Months				N.S.F. Grantee				N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su	Cal	Su		
72	0	0	0	36	0	0	7667.00		3833.00	
30	0	0	0	0	0	0	4000.00		0.0	
0	10	0	0	0	5	0	1280.00		640.00	

1. Senior Personnel

Faculty Associates

K. Bridges (90%)

L. Huber (25%)

Jim Watson (1/4 time, Jan-June)

R. J. Hanks (Soils Model)

2. Other Personnel

Graduate Students

4 Graduate programmers, 50%, for

General model

2 Graduate programmers, 50%, for

soils model

Pre-Baccalaureate students

Undergraduate assistance

Secretarial-Clerical

Key-Punch Operator, 50%

Subtotal 40447.00

B. Fringe Benefits

Fringe Benefits (10% contract personnel)

D. Expendable supplies

Keypunch rental, 50%

Other computer supplies

Subtotal 2450.00

3969.78

447.30

450.00

2000.00

0.0

0.0

Cal Acad Su Cal Acad Su N.S.F. Grantee

G. Other Costs  
 Computer Costs  
 Computer Time  
 Contracts  
 Contract with Utah State Water  
 Laboratory (Dr. Paul Riley) for  
 Stream-flow Model  
 Subtotal 45000.00

H. Total Direct Costs

I. Indirect Costs, 54.45

J. Total Costs

91866.70  
 22023.39  
 113890.09  
 4920.30  
 2435.54  
 7355.84





## University of Southern Cal

## --- Central Office - Vetebrate Process Study Coordinator

## A. Salaries and Wages

1/10 - Man Month		N.S.F. Grantee		N.S.F.		Grantee
Cal	Acad	Su	Cal	Acad	Su	
0	10	10	0	10	0	1324.00
30	0	0	0	0	0	0.0

## 1. Senior Personnel

Faculty Associates

Robert Chew (3 months)

## 2. Other Personnel

Secretary (1/4 time)

Subtotal 4148.00

## B. Fringe Benefits

6% of Salaries

249.00

79.00

## D. Expendable Supplies

500.00

0.0

## H. Total Direct Costs

4897.00

1403.00

## I. Indirect Costs, 38.00% of A

1576.23

503.11

## J. Total Costs

6473.23

1906.11

## University of Arizona --- Central Office - Invertebrate Process Study Coordinator

A. Salaries and Wages	1/10 - Man Months				N.S.F.	Grantee
	Cal	Acad	Su	Cal		
1. Senior Personnel						
Faculty Associates						
Floyd Werner (1/4 time)	17	0	0	8	3266.00	1633.00
2. Other Personnel						
Secretarial-Clerical						
Secretary (1/4 time)	30	0	0	0	1300.00	0.0
Subtotal						4566.00
B. Fringe Benefits						
Fringe Benefits (10%)					457.00	163.00
D. Expendable Supplies						
Miscellaneous					500.00	0.0
H. Total Direct Costs					5523.00	1796.00
I. Indirect Costs, 44.95% of A.					2052.41	734.03
J. Total Costs					7575.41	2530.03

## New Mexico State University -- Central Office -- Microorganism Process Study Coordinator

A. Salaries and Wages		1/10 - Man Months				N.S.F. Grantee		N.S.F.	Grantee
		Cal	Acad	Su	Cal	Acad	Su		
1. Senior Personnel									
Faculty Associates									
E. E. Staffeldt (1 mo. summer									
1 mo. A/Y)									
		0	0	0	0	10	0	1900.00	1900.00
2. Other Personnel									
Secretarial-Clerical									
Secretary Assistance (1/4 time)									
		30	0	0	0	0	0	1000.00	0.0
	Subtotal								
B. Fringe Benefits									
New Mexico Retirement, 6.5% of Staff									
								124.00	124.00
FICA, 5.2% of Applicable Salaries									
								96.00	44.00
Insurance, 1% of Salaries									
								29.00	19.00
	Subtotal								
D. Expendable Supplies									
								500.00	0.0
H. Total Direct Costs									
								3649.00	2087.00
I. Indirect Costs, 41.00% of A									
								1188.99	778.99
J. Total Costs									
								4837.99	2865.99

## Utah State University -- Central Office - Abiotic Process Study Coordinator

## A. Salaries and Wages

1/10 - Man Months		N.S.F.		Grantee	
Cal	Acad	Su	Cal	Acad	Su
20	0	0	10	0	0
30	0	0	0	0	0

## 1. Senior Personnel

Faculty Associates

R. J. Hanks (1/4 time)

## 2. Other Personnel

Secretarial-Clerical

Secretary (1/4 Time)

Subtotal 4820.00

## B. Fringe Benefits

10% of Contract Salaries

## D. Expendable Supplies

Miscellaneous Office Supplies

## H. Total Direct Costs

## I. Indirect Costs, 54.45 % of A

## J. Total Costs

Idaho State University      -- Central Office - Aquatic Process Study Coordinator

A. Salaries and Wages	1/10 - Man Months						N.S.F.	Grantee
	Cal	Acad	Su	Cal	Su	Cal		
1. Senior Personnel								
Faculty Associates								
G. Wayne Minshall (1/4 time)	0	15	5	0	10	0	2674.00	1337.00
2. Other Personnel								
Secretarial-Clerical								
Secretary (1/4 time)	30	0	0	0	0	0	1080.00	0.0
Subtotal		3754.00						
D. Expendable Supplies								
Miscellaneous							500.00	0.0
H. Total Direct Costs							4254.00	1337.00
I. Indirect Costs, 28.23% of H.							1200.90	377.43
J. Total Costs							5454.90	1714.43

#### Section 4. Validation Studies

University of Arizona      Development of a technique for measuring the water balance of validation study areas

A. Salaries and Wages

		1/10 - Man Months					
		N.S.F.		Grantee			
		Cal	Acad	Su	Cal	Acad	Su
						N.S.F.	Grantee

1. Senior Personnel

Faculty Associates

Project Leader: John L. Thames  
(2 Mos)

0	0	0	0	20	0	0	0	0.0	3000.00
---	---	---	---	----	---	---	---	-----	---------

2. Other Personnel

Graduate Students

Graduate Assistant (2)

50% A/Y, 100% Summer

Pre-Baccalaureate Students

Student Labor, 5 man months

Subtotal 9500.00

0	90	60	0	0	0	0	0	8000.00	0.0
50	0	0	0	0	0	0	0	1500.00	0.0

B. Fringe Benefits  
6.5% of A

613.00	195.00
--------	--------

D. Expendable Supplies  
Supplies and Repairs

1000.00	0.0
---------	-----

E. Travel  
Domestic Travel  
Travel to Site

500.00	0.0
--------	-----

H. Total Direct Costs

11618.00	3195.00
----------	---------

I. Indirect Costs, 44.95% of A

4270.24	1348.49
---------	---------

J. Total Costs

15888.24	4543.49
----------	---------



Development of Techniques for Estimating Biomass

of Desert Inhabiting Invertebrate Animals

1/10 Man-Months  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su N.S.F. Grantee

A. Salaries and Wages

1. Senior Personnel

(a) Faculty Associates:

G. L. Bender, 2 A/Y 2 Summer Mo.

0 6 20 0 14 0 3260.00 1630.00

2. Other Personnel

(a) Research Associates:

James MacMahon, 3 Mos.

30 0 0 0 0 0 3500.00 0.0

(b) Graduate Assistant, 1/2 time A/Y, 100% Summer

0 45 30 0 0 0 4200.00 0.0

Subtotal 10960.00

B. Fringe Benefits

6% Salaries and Wages

657.60 97.80

Subtotal 657.60

C. Equipment and Permanent Facilities

Suction Traps

500.00 0.0

N.S.F.      Grantee

## D. Expendable Supplies

Glassware	150.00	0.0
Chemicals	100.00	0.0
Sheet Plastic	500.00	0.0
Miscellaneous	100.00	0.0

Subtotal      850.00

## E. Travel

## 1. Domestic Travel

16,000 Miles @ .10 Per Mile	1600.00	0.0
Per Diem	400.00	0.0

Subtotal      2000.00

## H. Total Direct Costs

14967.60      1727.80

## I. Indirect Costs, 55.60% of A

6093.75      906.27

## J. Total Costs

21061.35      2634.07

Utah State University

Small Mammal Sampling Techniques for Validation Sites

P-71

4.2.3.-1

1/10 Man-Months-  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su N.S.F. Grantee

A. Salaries and Wages

1. Senior Personnel

(1) Faculty Associates:  
Project Leader, D. F. Balph  
(included elsewhere)

2. Other Personnel

(1) Graduate Students:

Graduate Assistant, R. D. Anderson (C/Y)

B. Fringe Benefits (10% Salary)

D. Expendable Supplies

Field Supplies  
Office Supplies

Subtotal 250.00

E. Travel

1. Domestic Travel  
Vehicle Rental (Approx. 65 Trips to Study Area)

H. Total Direct Costs

I. Indirect Costs, 54.45% of A

J. Total Costs

60	0	0	0	0	0	3000.00	0.0
						300.00	0.0
						200.00	0.0
						50.00	0.0
						500.00	0.0
						4050.00	0.0
						1633.49	0.0
						5683.49	0.0

## Brigham Young University Small mammal sampling techniques for validation sites

A. Salaries and Wages	1/10 - Man Months				N.S.F.		Grantee
	Cal	Acad	Su	Cal	Acad	Su	
1. Senior Personnel							
Principal Investigator							
Clive D. Jorgensen (1/2 Mo. A/Y, 1 mo. summer)	0	0	10	0	5	0	744.00
Faculty Associates							
H. Duane Smith (1 mo. A/Y)	0	0	0	0	10	0	1222.00
2. Other Personnel							
Graduate Students							
Del T. Scott (50% A/Y, Full time summer)	0	45	30	0	0	0	0.0
Subtotal							5189.00
D. Expendable Supplies							
Expendable Supplies							0.0
E. Travel							
Domestic Travel							0.0
Travel							1750.00
H. Total Direct Costs							1966.00
I. Indirect Costs 35.58% A on, 14.2% off-campus							699.50
J. Total Costs							2665.50

Methods for the Study of Soil Nematode, in Desert Ecosystems

P-71

1/10 Man-Months.

N.S.F. Grantee

Cal Acad Su Cal Acad Su

N.S.F.

Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

R. Mankau, 25% (Less Hatch Funds)

S. A. Sher, 5%

S. D. Van Gundy

0

0

0

0

0

0

0

0

0

0

0.0

0.0

1518.00

1040.00

## 2. Other Personnel

## (a) Graduate Students

Research Assistants (2), 58%

0

90

40

0

0

0

8526.00

0.0

## (b) Technical

Laboratory Helper

60

0

0

0

0

0

2100.00

0.0

Subtotal

19626.00

## B. Fringe Benefits

0.0

331.00

## C. Equipment and Permanent Facilities

Ostenbrink Apparatus (2)

1000.00

0.0

4.2.4.-1

N.S.F.      Grantee

## D. Expendable Supplies

Slide Boxes, Collecting and Processing Supplies

1500.00      0.0

## E. Travel

Domestic Travel

3540.00      0.0

## H. Total Direct Costs

16666.00      2889.00

## I. Indirect Costs, 44.00% of A

4675.43      1125.51

## J. Total Costs

21341.43      4014.51

Seed Reserves in the Validation Study Areas

	1/10 Man-Months N.S.F.      Grantee				N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su
<b>A. Salaries and Wages</b>						
1. Senior Personnel						
Principal Investigator, D. W. Goodall (salary included elsewhere)	60	0	0	0	0	0
2. Other Personnel						
(a) Graduate Students:						
Research Assistant (50%)					4000.00	0.0
(b) Pre-Baccalaureate Students						
Undergraduate Assistance	0	0	0	0	500.00	0.0
Subtotal					425.00	0.0
B. Fringe Benefits - 10% Contract, 5% Payroll						
C. Equipment and Permanent Facilities						
Binocular Dissecting Microscope					500.00	0.0
Thermal Gradient Bar and Chamber					600.00	0.0
Subtotal						
D. Expendable Supplies						
Miscellaneous Supplies					500.00	0.0

	N.S.F.	Grantee
E. Travel		
1. Domestic Travel		
Travel to Sites	1000.00	0.0
H. Total Direct Costs	7525.00	0.0
I. Indirect Costs, 54.45% of A	2450.24	0.0
J. Total Costs	9975.24	0.0



University of Nevada, Ag Exp Sta      Applications of remote sensing techniques for analysis of Desert Biome  
Validation sites

### A. Salaries and Wages

1/10 - Man Months  
N.S.F. Grantee  
Cal Acad Su Cal

## 1. Senior Personnel

Faculty Associates  
Paul Tueller

## 2. Other Personnel

Non-faculty Professionals, Other  
Full-time at Univ. of Nevada  
Pre-Baccalaureate Students  
Part-time Labor (Ground truth  
Measurements and Photo  
Interpretation)

	90	0	0	0	8460.00	2675.00
--	----	---	---	---	---------	---------

	0	0	0	0	0	0	0.0
12000.00							

Subtotal	20460.00
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## B. Fringe Benefits

640.00	0.0
--------	-----

#### D. Expendable Supplies

Materials (Film cost, Processing  
Internegatives, IR Film calibration  
Enlargements) \*\*

22000.00 0.0

Aircraft Rental (Estimated Elapsed Air  
Time Per photo Mission - 36 hours  
at \$40/hour)

4800.00	0.0
---------	-----

Subtotal 26800.00

## E. Trável

Domestic Travel  
Travel and Per Diem

4300.00 0.0



Validation Studies at Curlew Valley, Utah and Idaho - Terrestrial

4.4.1.2.-1

1/10 Man-Months  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su N.S.F. Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

	20	0	0	10	0	0	3200.00	1600.00
Site Coordinator, D. Balph, 3 Mos. C/Y	20	0	0	0	0	0	2200.00	0.0
R. Lynn, 2 Mos., C/Y	20	0	0	10	0	0	2000.00	1000.00
P. Goodman, 3 Mos., C/Y	20	0	0	0	0	0	2000.00	0.0
G. Knowlton, 2 Mos., C/Y	20	0	0	0	0	0	600.00	600.00
T. Hsiao, 1 Month, C/Y	5	0	0	5	0	0	700.00	700.00
K. Dixon	5	0	0	5	0	0	1300.00	1300.00
G. Gifford, 1 Month, C/Y	10	0	0	10	0	0	1300.00	0.0
F. H. Wagner*	10	0	0	0	0	0	1450.00	1450.00
J. Skujins, 2 Months, C/Y	10	0	0	0	0	0	750.00	0.0
G. Baker, 1 Month, C/Y	10	0	0	10	0	0	750.00	0.0
A. Southard, 2 Months, C/Y	10	0	0	0	0	0	900.00	900.00
V. Hugie, 1 Month, C/Y	10	0	0	0	0	0		
L. Wilson, 1 Month, C/Y	10	0	0	0	0	0		
J. Hanks, 1 Month, C/Y	5	0	0	5	0	0		
G. Ashcroft								
I. Dirmhirn								

## 2. Other Personnel

(a) Research Associate  
Non-Faculty Professional, A. Holman

10	0	0	0	0	0	1000.00	0.0
----	---	---	---	---	---	---------	-----

(b) Graduate Students  
Graduate Students (2) 50%

0	90	60	0	0	0	7400.00	0.0
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\* Included elsewhere

Utah State University

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4.4.1.2.-2

	1410 Man-Months					N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su	Grantee
(c) Pre-Baccalaureate Students							
Undergraduate Students, 12 Months	120	0	0	0	0	0	3000.00 0.0
(d) Technical							
Technicians (2) 2.5 Months	50	0	0	0	0	0	1750.00 0.0
Caretaker, 12 Months	120	0	0	0	0	0	6000.00 0.0
Subtotal							36300.00
B. Fringe Benefits							3480.00 755.00
C. Equipment and Permanent Facilities							
Corrals Scales and Other Equipment for							
Handling Cattle							4000.00 0.0
Meteorological Station as Described							60000.00
Subtotal							64000.00
D. Expendable Supplies							
Fences: 12 Mis. @ \$900/Mile							10800.00 0.0
Roads: 4 1/2 Miles @ \$1130/Mile (4" Base of Gravel)							5085.00 0.0
Power Line Extension: 5 Miles @ \$1500/Mile							7500.00 0.0
Utility Charges							1000.00 0.0
Water Development							4000.00 0.0
Plot Makers							500.00 0.0
Collecting Supplies							3000.00 0.0
Specimen Preparation Supplies							1000.00 0.0
Miscellaneous							5000.00 0.0
Subtotal							37885.00

Utah State University

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4.4.1.2.-3

N.S.F.      Grantee

E. Travel

1. Domestic Travel:  
Lease, Maintenance and Operation of  
3 Pickup Trucks for On-Site Travel

5000.00      0.0

Travel to Site

950.00      0.0

On-Site Living Expenses

1500.00      0.0

Subtotal      7450.00

G. Other Costs

Consultants, Etc.

Consultant Fee, L. C. Pearson

1500.00      0.0

Miscellaneous

Soil Laboratory Analyses

2500.00      0.0

Subtotal      4000.00

H. Total Direct Costs

153115.00      8305.00

I. Indirect Costs, 54.45% of A

19765.34      4111.00

J. Total Costs

172880.34      12416.00

Validation Studies at Curlew Valley, Utah and Idaho - Terrestrial

		1/18 Man-Months N.S.F. Grantee				N.S.F. Grantee	
		Cal	Acad	Su	Cal	Acad	Su
A. Salaries and Wages							
1. Senior Personnel							
(a) Faculty Associates							
K. Holte, 1 Month A/Y, 2 Mos. Summer		0	0	20	0	10	0
C. Trost, 1 Month A/Y, 2 Mos. Summer		0	0	20	0	10	0
M. Loebeck, 1 Month Summer 1 Month A/Y		0	0	10	0	10	0
R. Anderson, 1 Month A/Y, 2 Mos. Summer		0	0	20	0	10	0
					2400.00		1200.00
					2200.00		1100.00
					1400.00		1400.00
					2250.00		1125.00
2. Other Personnel							
(a) Graduate Students							
Graduate Students (2) A/Y		0	90	60	0	0	0
					6450.00		0.0
(b) Pre-Baccalaureate Students							
Undergraduate Student Labor		20	0	0	0	0	0
					650.00		0.0
Subtotal					1503.00		483.00
B. Fringe Benefits							
D. Expendable Supplies							
Collecting Supplies					1200.00		0.0
Specimen Preparation					800.00		0.0
Miscellaneous					200.00		0.0
Subtotal							2200.00

N.S.F. Grantee

E. Travel

1. Domestic Travel:  
Travel by Car to Site

1000.00 0.0

H. Total Direct Costs

20053.00 5308.00

I. Indirect Costs, 28.23% of H

5660.96 1498.44

J. Total Costs

25713.96 6806.44

Approved for use  
by the Principal Investigator  
and the Institution

G. Personnel Salaries

1. 10000 40000 10000 40000 10000 40000

2. 10000 40000 10000 40000 10000 40000

3. 10000 40000 10000 40000 10000 40000

4. 10000 40000 10000 40000 10000 40000

I. Equipment

1. 10000 40000 10000 40000 10000 40000

2. 10000 40000 10000 40000 10000 40000

3. 10000 40000 10000 40000 10000 40000

4. 10000 40000 10000 40000 10000 40000

Validation Studies at Curlew Valley, Utah and Idaho - Terrestrial

4/10 Jan-Morts

N.S.F. Grantee

Cal Acad Su Cal Acad Su

N.S.F.

Grantee

### A. Salaries and Wages

## 1. Senior Personnel

(a) Faculty Associates

D. Johnson, 1/2 Mo. A/Y, 1 Mo. Summer

1400.00

700.00

## 2. Other Personnel

(a) Pre-Baccalaureate Students

Undergraduate Student Labor

650.00

0.0

Subtotal

2050.00

### B. Fringe Benefits (15% Faculty Salaries)

60.072

105.00

#### D. Expendable Supplies

Collecting Supplies

## Specimen Preparation

Miscellaneous

400.00

200.00

550.00

Subtotal

1150.00



	N.S.F.	Grantee
E. Travel		
Domestic Travel		
Travel by Car to Site	1500.00	0.0
On-Site Living Expenses	600.00	0.0
Subtotal		
	2100.00	
H. Total Direct Costs	5510.00	805.00
I. Indirect Costs, 20.96% of H	1154.89	168.72
J. Total Costs	6664.89	973.72

Validation Studies at Curlew Valley, Idaho and Utah - Aquatic - Deep Creek

1/10 Man-Months-  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su N.S.F. Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

Project Leader: G. Wayne Minshall  
(15% Academic Year, 65% Summer)  
Fred L. Rose (10% Academic Year,  
50% Summer)

0	0	15	0	15	0	1600.00	1650.00
0	0	10	0	9	0	1156.00	1040.00

## 2. Other Personnel

## (a) Graduate Students

3 Research Assistants (1/2 Time,  
10 Academic Mos.; Full Time 2  
Summer Mos., @ \$300 and \$600/Mo.)

0	150	60	0	0	0	12600.00	0.0
---	-----	----	---	---	---	----------	-----

(b) Secretarial-Clerical  
Secretary (2 Mos.)

20	0	0	0	0	0	720.00	0.0
----	---	---	---	---	---	--------	-----

## (c) Technical

Key-Punch Operator (1/2 Time)

60	0	0	0	0	0	1800.00	0.0
----	---	---	---	---	---	---------	-----

## (d) Hourly Labor

Laboratory Assistant (Part-Time Student  
to Help Handle Routine Processing  
of Samples)

60	0	0	0	0	0	2100.00	0.0
----	---	---	---	---	---	---------	-----

Subtotal

19976.00

	N.S.F.	Grantee
B. Fringe Benefits (12.3% Professional and 4.8% of All Other Salaries)	1030.00	331.00
C. Equipment and Permanent Facilities		
Automatic Data Logger (a @ \$5500 Each)	22000.00	0.0
D. Expendable Supplies		
Expendable Materials: Reagents, Preservatives, Photographic Materials, Glassware, Data Recording Cards and Tapes, Upkeep on Equipment.	1000.00	0.0
E. Travel		
Domestic Travel		
Weekly Visits to Study Area, Average of 150 Miles/Visit, @ .10/Mile University Rates for Vehicle.	800.00	0.0
H. Total Direct Costs	44806.00	3021.00
I. Indirect Costs, 28.23% of H	12648.73	852.82
J. Total Costs	57454.73	3873.82

Utah State University                      -- Validation Studies - Curlew Valley - Aquatic: Locomotive Springs

A. Salaries and Wages

1/10 - Man Months		N.S.F. Grantee		N.S.F.		Grantee
Cal	Acad	Su	Cal	Acad	Su	

1. Senior Personnel

Faculty Associates

J. Neuhold

F. Post (2 months)

R. Lynn (2 months)

0	0	20	0	0	0	1400.00	0.0
0	0	20	0	0	0	1200.00	0.0

2. Other Personnel

Research Associates, Postdoctoral

J. A. Holman (6 months)

Technical

I. Walkin (full time)

Michael Brooks (Part-time)

(\$250/month)

60	0	0	0	0	0	5000.00	0.0
120	0	0	0	0	0	6000.00	0.0
60	0	0	0	0	0	2800.00	0.0

Subtotal      16400.00

B. Fringe Benefits

Fringe Benefits (10%)

1640.00      0.0

D. Expendable supplies

Expendable supplies

1000.00      0.0

E. Travel

Domestic Travel

1500.00      0.0

H. Total Direct Costs

20540.00      0.0

I. Indirect Costs, 54.45 % of A

8929.79      0.0

Total Costs

29469.79      0.0

## University of California at L A -- Validation Studies Death Valley Drainage - Rock Valley

## A. Salaries and Wages

1/10 - Man Months		N.S.F.		Grantee	
Cal	Acad	Su	Cal	Acad	Su

N.S.F. Grantee

## 1. Senior Personnel

## Faculty Associates

Project Leader: Frederick B. Turner  
(5/6 time)

60 0 0 40 0 0

Arthur Wallace (1/20 time)

9450.00

Evan Romney (1/2 Time, AEC)

6300.00

Verle Hale (1/4 time, AEC)

0.0

## 2. Other Personnel

## Non-Faculty Professionals, Other

James Childress

60 0 0 0 0 0

(1/2 time + 1/4 time AEC)

Paul Wieland (1/2 Time, AEC)

6930.00

Harold Mork (1/4 Time, AEC)

0.0

Rulon Ashcroft (1/2 Time, AEC)

Arnold Aschwander (1/2 Time, AEC)

Tom Ackerman (1/2 Time, AEC)

Philip Medica (1/2 Time, AEC)

Herbert Hill (1/4 Time, AEC)

Mammalian Ecologist (TBN) (1/4 time, AEC)

Hourly labour

Part time field help

30 0 0 0 0 0

(1/4 time + 1/4 time, AEC)

2000.00

0.0

Subtotal 18380.00

## B. Fringe Benefits

10% of Salaries and Wages

1838.00

745.00

	Cal	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
C. Equipment and Permanent Facilities								
Meteorological Station								
(Half from CETO/AEC)							25000.00	0.0
Other (, \$5000 from CETO/AEC)								
D. Expendable Supplies								
Miscellaneous Supplies							1000.00	0.0
Other supplies and vehicles from AEC								
\$21000								
E. Travel								
Domestic Travel								
Travel to site (+ Contribution from AEC)							1000.00	0.0
Other Travel Costs From AEC \$500								
H. Total Direct Costs							47218.00	8195.00
I. Indirect Costs, 44.00% of A							8087.19	3277.99
J. Total Costs							55305.19	11472.99



	Cal Acad Su	Cal Acad Su	N.S.F.	Grantee
H. Total Direct Costs			24000.00	5753.00
I. Indirect Costs, 24.53% of H			5887.19	1413.47
J. Total Costs			29887.19	7163.47

H. Total Direct Costs

I. Indirect Costs, 24.53% of H

J. Total Costs



Death Valley Drainage - Rock Valley

San Francisco State College

### A. Salaries and Wages

1/10 - Man Months  
N.S.F. Grantee  
Cal Acad Su Cal

N.S.F. Grantee

## 1. Senior Personnel

Faculty Associates

Stanley Williams (1 mo, A/Y)

[illegible]

0.0

#### D. Expendable Supplies

Sampling and Collecting Supplies

Photographic Supplies and Processing

Miscellaneous

400.00	200.00
200.00	0.0
200.00	0.0

Subtotal	800.00
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E. Travel

Domestic Travel

Travel to Nevada Test Site

on Site Living Expenses

390.00	0.0
150.00	0.0

Subtotal	540.00
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## H. Total Direct Costs

2840.00	200.00
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I. Indirect Costs, 54.35 % of A  
(Including Fringe Benefits)

815.10 0.0

## J. Total Costs

3655.10 200.00



## University of Southern California

Death Valley Drainage - Rock Valley

A. Salaries and Wages	1/10 - Man Months								
	N.S.F.	Grantee							
	Cal Acad	Su	Cal	Acad	Su	N.S.F.		Grantee	
1. Senior Personnel									
Faculty Associates									
Robert M. Chew (1-1/2 Months, A/Y)	0	5	0	0	10	0	800.00	1600.00	
B. Fringe Benefits									
6% of Faculty Salaries							48.00	96.00	
C. Equipment and Permanent Facilities									
2 Used or new movie cameras							400.00	0.0	
2 Power Packs							200.00	0.0	
Subtotal									600.00
D. Expendable Supplies									
Miscellaneous Supplies							200.00	0.0	
E. Travel									
Domestic Travel									
Travel to Nevada Test Site							265.00	0.0	
On Site Living Expenses							150.00	0.0	
Subtotal									415.00
H. Total Direct Costs							2063.00	1596.00	
I. Indirect Costs, 38.00% of A							304.00	508.00	
J. Total Costs							2367.00	2304.00	

A. Salaries and Wages	Cal	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
1. Senior Personnel								
(a) Faculty Associates								
Ronald L. Church (1 Mon., C/Y)	10	0	0	1	0	0	1347.00	70.00
Jeanette Wheeler (1 Mon., C/Y)	10	0	0	1	0	0	824.00	43.00
George Wheeler (Retired)								
Sam Bamberg (2 Mos., C/Y)	19	0	0	1	0	0	2232.00	118.00
Subtotal							4403.00	
B. Fringe Benefits								
Nevada Industrial Commission								
(7% of Salaries)							308.21	16.17
D. Expendable Supplies								
1. Collecting Supplies							200.00	0.0
2. Mammal Traps							1500.00	0.0
3. Bait, Marking tags							250.00	0.0
4. Plant sampling supplies							500.00	0.0
Subtotal							2450.00	
E. Travel								
Domestic Travel								
1. Travel to Nevada Test Site							1296.00	0.0
2. On site living expenses							540.00	0.0
Subtotal							1836.00	
H. Total Direct Costs							8997.21	247.17
I. Indirect Costs, 45.44% of A+B							2140.34	112.31
J. Total Costs							11137.55	359.48

U. S. Public Health Service		Death Valley Drainage - Rock Valley			
A. Salaries and Wages					
1. Senior Personnel					
Faculty Associates					
Fred H. F. Au (2 Mo, C/Y)					
(Federal Employee)					
		1/10 - Man Month			
		N.S.F.	Grantee		
		Cal Acad	Su	Cal Acad	Su
				N.S.F.	Grantee
D. Expendable Supplies					
Disposable Petri Dishes		200.00			300.00
Culture Media		50.00			0.0
Test Tubes		200.00			0.0
Disposable Pipettes		50.00			0.0
	Subtotal				
					500.00
E. Travel					
Domestic Travel					
Travel to Nevada Test Site		250.00			0.0
On Site Living Expenses		125.00			0.0
	Subtotal				
					375.00
H. Total Direct Costs					
		875.00			300.00
I. Indirect Costs, 0.0% of A					
		0.0			0.0
J. Total Costs					
		875.00			300.00

## Validation Studies at Saratoga Springs, California

1/10 Man-Months  
N.S.F.      Grantee

	Cal Acad Su	Cal Acad Su	N.S.F.	Grantee
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### A. Salaries and Wages

## 1. Senior Personnel

(a) Faculty Associates:

[illegible]

## 2. Other Personnel

(a) Graduate Students:

[illegible]

(b) Technical:

	0	0	0	0	0	8000.00	0.0
120	0	0	0	0	0	0	0.0

Subtotal	29400.00
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**B.B. Fringe Benefits (7% of Professional and Caretakers Salaries)**

1148.00	155.00
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4.4.2.3.-1

N.S.F.      Grantee

## C. Equipment and Permanent Facilities

Trailer (Living Quarters and Laboratory  
for Caretakers)  
Recording Pyrheliometer (2@ \$350)  
Standard Weather Station  
Traps (Fish, Bird and Mammal)  
Oxygen Analyser (2)  
Seines

8000.00      0.0  
700.00      0.0  
150.00      0.0  
1000.00      0.0  
0.0      1000.00  
0.0      200.00

Subtotal      9850.00

## D. Expendable Supplies

Glassware, Slides, Tags  
Material for Primary Productivity Tubes  
Reagents  
Fencing for Weather Station

500.00      100.00  
300.00      0.0  
500.00      0.0  
500.00      0.0

Subtotal      1800.00

## E. Travel

## Domestic Travel:

12 Trips of 250 Miles Each - 3000 Miles  
@ .10/Mile Plus \$5.00/Day  
Per Diem (Food will be Provided on Site  
by the Caretaker thus Reducing Per Diem  
Costs - An Estimated Food Cost of \$5  
Per Man Day with an Estimated 515 Man Days  
on the Site is Used in Arriving at the Food  
Cost.)

420.00      0.0

2575.00      0.0

Subtotal      2995.00

	N.S.F.	Grantee
H. Total Direct Costs	45193.00	7955.00
I. Indirect Costs, 45.44% of A+B	13881.00	3024.03
J. Total Costs	59074.00	10979.03



Deep Canyon1/10 Man-MonthsN.S.F.      Grantee

Cal Acad Su Cal Acad Su

## A. Salaries and Wages

N.S.F.      Grantee

## 1. Senior Personnel

## (a) Faculty Associates:

Frank Vasek (1 Mo. Sum, 12.5% A/Y)	0	0	10	0	11	0	2310.00	2599.00
Rodolfo Ruibal (1 Mo. Sum, 12.5% A/Y)	0	0	10	0	11	0	2310.00	2599.00
V.H. Shoemaker (2 Mos. Sum, 25% A/Y)	0	0	20	0	22	0	3452.00	3885.00
Robert Gill (1 Mo. Sum, 12.5% A/Y)	0	0	10	0	11	0	1330.00	1496.00
Hirum Johnson (1 Mo. Sum, 12.5% A/Y)	0	0	10	0	11	0	1330.00	1496.00

## 2. Other Personnel

## (a) Graduate Students:

Graduate Research Assistant,

Step I (8)

Graduate Research Assistant,

Step II (4)

Graduate Research Assistant,

Step III (3)

(b) Secretarial-Clerical

Secretary (Half-time)

0	45	30	0	0	0	0	35280.00	0.0
0	45	30	0	0	0	0	17932.00	0.0
0	45	30	0	0	0	0	13671.00	0.0
60	0	0	0	0	0	0	2610.00	0.0

Subtotal

80225.00

## B. Fringe Benefits

Employee Benefits (10%)

Faculty Annuity (3%)

522.00	1207.00
0.0	362.00

Subtotal

522.00

	N.S.F.	Grantee
1500.00	0.0	
150.00	0.0	
600.00	0.0	
2000.00	0.0	
1000.00	0.0	
500.00	0.0	
400.00	0.0	
1700.00	0.0	
1700.00	0.0	
1800.00	0.0	
60000.00	0.0	

1080.00	0.0
900.00	0.0
5000.00	0.0

5200.00	0.0
4380.00	0.0

## C. Equipment and Permanent Facilities

1. Dissecting Microscopes (3)
2. Binoculars, Field (2)
3. Animal traps
4. Special Sterio Microscope for soil surface studies (1)
5. Water-stage recorder and well
6. Psychrometric micro voltmeter
7. Portable elctetric conductivity meter
8. Surface moisture probe
9. Surface density meter
10. Moisture density meter
11. Biome meteorological equipment and standard weather station

Subtotal 71350.00

## D. Expendable Supplies

1. Salinity sensors (36)
2. Thermocouple psychrometers (36)
3. Misc. Collecting and Measuring equipment

Subtotal 6980.00

## E. Travel

## Domestic Travel

- Estimated 5 trips/wk for 52 wks  
Estimated per diem at \$21 per wks  
for 52 wks for 4 men

Subtotal 9580.00

	N.S.F.	Grantee
G. Other Costs		
1. Communications costs:		
Telephone line from Deep Canyon		
2. Miscellaneous	2000.00	0.0
Install concrete flume	2000.00	0.0
soil survey	400.00	0.0
Subtotal		4400.00
H. Total Direct Costs	173057.00	13644.00
I. Indirect Costs, 44.00% of A	35298.99	5312.99
J. Total Costs	208355.99	18956.99

## Validation Studies at Jornada, New Mexico

4.4.4.-4

A. Salaries and Wages		1/10 Man-Months				N.S.F. Grantee				N.S.F. Grantee			
		Cal Acad Su Cal Acad Su				Cal Acad Su Cal Acad Su				Cal Acad Su Cal Acad Su			
1. Senior Personnel													
(a) Faculty Associates													
Microbiologist 2/9 A/Y, 100% 2 Summer Months (1/4 On-, 3/4 Off-Campus)		0	10	20	0	10	0	10	0	3852.00		1284.00	
George F. Meenahgan 100% 2 Summer Months (1/2 On-, 1/2 Off-Campus)		0	0	20	0	10	0	10	0	4434.00		2217.00	
Charles R. Ward 2/9 A/Y, 100% 2 Summer Months (1/4 On-, 3/4 Off-Campus)		0	10	20	0	10	0	10	0	4194.00		1398.00	
Ellis W. Huddleston													
Donald Ashdown													
Charles W. O'Brien													
2. Other Personnel													
(a) Graduate Students													
2 Graduate Research Assistants, 50% Time (1/2 On-, 1/2 Off-Campus)		120	0	0	0	0	0	0	0	7200.00		0.0	
(b) Pre-Baccalaureate Students													
Undergraduate Assistants (1/2 On-, 1/2 Off-Campus)		120	0	0	0	0	0	0	0	3250.00		0.0	
(c) Secretarial-Clerical													
Secretarial-Clerical 1/12 A/Y (on Campus)		10	0	0	0	0	0	0	0	300.00		0.0	
Subtotal										23230.00			

# New Mexico State University

N.S.F.                      Grantee

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4.4.4.-3

NOTE: Including funds for honorarium for consultants will allow us to draw on the expertise of systematists and ecologists who would not ordinarily be involved in validation site studies.

## H. Total Direct Costs

137512.00                      42240.00

## I. Indirect Costs, 41.00 % of A

23696.36                      14980.57

## J. Total Costs

161208.36                      57220.57

	1/10 Man-Months N.S.F. Grantee					N.S.F	Grantee
	Cal	Acad	Su	Cal	Acad	Su	
(c) Secretarial - Clerical Secretary (50% C/Y)	60	0	0	0	0	0	0.0
Subtotal							57796.00
B. Fringe Benefits (FICA Retirement Insurance, etc. on Professional Salaries)							2216.00
							4702.00
C. Equipment and Permanent Facilities							
Field Vehicle (Carry all)							3500.00
Meteorological Station as Described							60000.00
Subtotal							0.0
							0.0
D. Expendable Supplies							
Fencing and Site Preparation							2000.00
Animal Traps, Nets, Glassware, Chemicals							0.0
Media, Tapes, Markers, etc.							6000.00
Subtotal							0.0
E. Travel							
Domestic Travel							3000.00
Travel to Site - 30,000 Miles @ \$.10/Mile							0.0
G. Other Costs							3000.00
							1000.00
Consultants, Etc.							
Honoraria: Charles Davis, Richard Speilienberg, Charles Thaeler, Joseph Ellington of NMSU, Clifford Crawford, Howard Dittmer, J. David Ligon, Univ. of New Mex. and C. Edward Freeman, Univ. of Texas at El Paso							

Validation Studies at Jornada, New Mexico

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4.4.4.-1

1/10 Man-Months  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su N.S.F. Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates:

Project Leader: Walter Whitford (Site Coordinator 50% A/Y 100% Summer)  
William A. Dick-Peddie (10% A/Y, 50% Sum)  
John Ludwig (25% A/Y, 100% Summer)  
James R. Zimmerman (10% A/Y, 50% Summer)  
Volney W. Howard (2 Mo. C/Y)  
Ralph J. Raitt (25% A/Y, 100% Summer)  
Petrus Wierenga (2 Mo. C/Y)  
Arthur Wollum (0 Mo. C/Y)  
Robert T. O'Brien (25% A/Y, 100% Summer)  
Eugene E. Staffeldt (20% A/Y, 50% Summer)  
Rex Pieper (1 Mo. C/Y)  
Walter Gould (2 Mo. C/Y)  
Carlton Herbel (2 Mo. C/Y) (Fed. Employee)  
Gary Cunningham (10% C/Y)

0	0	0	30	0	45	0	2900.00	6358.00
0	0	0	0	0	9	15	0.0	6000.00
0	0	0	30	0	23	0	2446.00	3058.00
0	0	0	15	0	9	0	1600.00	1600.00
10	0	0	0	10	0	0	1200.00	1200.00
0	0	0	30	0	23	0	3200.00	4000.00
10	0	0	0	10	0	0	1200.00	1200.00
20	0	0	0	10	0	0	2400.00	1200.00
0	0	0	0	0	23	0	0.0	3822.00
0	0	0	15	0	18	0	1400.00	4000.00
10	0	0	0	10	0	0	1300.00	1300.00
10	0	0	0	10	0	0	1300.00	1300.00
0	0	0	0	20	0	0	0.0	0.0
0	0	0	0	12	0	0	0.0	1500.00

## 2. Other Personnel

## (a) Graduate Students

7 (50% C/Y)

8 (2 Mo. Summer)

420	0	0	0	0	0	0	28000.00	0.0
0	0	160	0	0	0	0	5600.00	0.0

## (b) Pre-Baccalaureate Students

4 Undergraduate Students, 2000 Hours  
@ \$1.50/Hr

11	0	0	0	0	0	0	3000.00	0.0
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Texas Tech University

1/10 Man-Months  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su

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4.4.4.-5

	N.S.F.	Grantee
B. Fringe Benefits	0	0
Oasi (4.8% of Total Salaries)	1115.00	235.00
WCI (2.0% of Non-Professional Salaries)	215.00	0.0
Subtotal	1330.00	0
D. Expendable Supplies	0	0
Maintenance of Equipment	2000.00	1000.00
E. Travel	0	0
Domestic Travel	0	0
Travel and Per Diem (Domestic 10.Mile; \$14-17/Day)	3000.00	0.0
G. Other Costs	0	0
Miscellaneous	0	0
Rental of Facilities (New Mexico State Univeristy)	500.00	0.0
H. Total Direct Costs	30060.00	6134.00
I. Indirect Costs, 36.74 Per Cent. of A	8534.69	1799.89
J. Total Costs	38594.69	7933.89



Subtotal

	N.S.F.	Grantee
<b>C. Equipment and Permanent Facilities</b>		
Power Generator	8000.00	0.0
Steel Water Storage Tank	6000.00	0.0
Shower and Laundry House	3000.00	0.0
Concrete Pads for House Trailers (2 Pads)	1500.00	0.0
1 House Trailer	5500.00	0.0
1 Bunk Trailer	3750.00	0.0
Collecting Equipment	6500.00	0.0
Specimen Processing Equipment	8000.00	0.0
Meteorological Station as described	60000.00	0.0
Subtotal	102250.00	
<b>D. Expendable Supplies</b>		
Expendable Supplies and Equipment	2000.00	0.0
<b>E. Travel</b>		
Domestic Travel		
Lease of 3 Pickup Trucks	2300.00	0.0
Travel to and From the Site	4350.00	0.0
Operation Costs of Leased Trucks		
@ \$.07 Per Mi., On-Site Travel	2250.00	0.0
On-Site Living Expenses Estimated at \$5.00 Per Day	6600.00	0.0
Subtotal	15500.00	
<b>G. Other Costs</b>		
Consultants, Etc.		
Consultant Fees, University of Utah Personnel	3000.00	0.0

	N.S.F.	Grantee
Miscellaneous		
Remodelling Existing Building as a Laboratory	8000.00	0.0
Subtotal	11000.00	
H. Total Direct Costs	171578.00	7333.03
I. Indirect Costs 35.58% A On-Campus, 14.20% Off-Campus	9349.00	2610.00
J. Total Costs	180927.00	9943.00



Arizona State University

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E. Travel

Domestic Travel

Fifteen Trips, 200 Miles Each @.15/Mile  
(University Rate for Trucks)  
Per Diem \$10/Day/Man, Two Men, 30 Days

Subtotal 1050.00

G. Other Costs

Consultants, Etc.

Packing & Shipping Biological Material for  
Identification. Fees for Identification  
of Some Groups

1000.00 0.0

H. Total Direct Costs

20860.04

I. Indirect Costs, 55.60% of A

8581.30

J. Total Costs

29441.34

N.S.F.

Grantee

450.00 0.0  
600.00 0.0

4.4.6.-2

## University of Arizona

Tucson Area

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## 1/10 Man-Months

N.S.F. Grantee

Cal Acad Su Cal Acad Su

N.S.F. Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates:

J. Thames (12% NSF, 30% UA)	15	0	0	0	40	0	0	2000.00	4500.00
J. Ehrenreich	0	0	0	0	10	0	0	0.0	2000.00
E.L. Cockrum	20	0	0	0	10	0	0	3000.00	1750.00
S. Russell	15	0	0	0	7	0	0	2400.00	1200.00
F. Werner	15	0	0	0	10	0	0	2900.00	2000.00
W. Nutting	10	0	0	0	0	0	0	2100.00	0.0

## 2. Other Personnel

## (a) Research Associates,

Postdoctoral	60	0	0	0	0	0	0	7000.00	0.0
G. Penick (50%)	30	0	0	0	0	0	0	3150.00	0.0
L. Annunziata	60	0	0	0	0	0	0	5300.00	750.00

## (b) Secretarial-Clerical (50%)

Hourly Labor	60	0	0	0	0	0	0	2500.00	0.0
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## (c) Graduate Students:

5 Research Assistants	0	225	150	0	0	0	0	20000.00	0.0
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Subtotal 52350.00

854.00

## B. Fringe Benefits (7% of A)

3665.00

## C. Equipment and Permanent Facilities

## 1. Silver Bell meteorological Station, Viz.

2. Net radiometer	600.00	0.0
3. Pyranometers (3)	800.00	0.0
4. Normal incidence radiometer	2000.00	0.0
5. Shielded thermistors (3)	1500.00	0.0
6. Infrared thermometer	1500.00	0.0

4.4.7.-1

	N.S.F.	Grantee
	100.00	0.0
	2000.00	0.0
	1500.00	0.0
	3000.00	0.0
	1000.00	0.0
	8500.00	0.0
	300.00	0.0

7. Thermocouples (6)
8. Recording rain gages (6)
9. Humidity, wafer type (3)
10. Anemometers (3)
11. Wind direction indicator
12. Remote station telemetry
13. Tower

Subtotal 22800.00

#### D. Expendable Supplies

1. Miscellaneous supplies for meteorological station (SB)
2. Data acquisition system (Annual lease)
3. Telephone (SB) (Annual)
4. Power (SB) (Annual)
5. Battery replacement (SRER)
6. Materials and supplies

800.00	0.0
13488.00	0.0
2400.00	0.0
420.00	0.0
400.00	0.0
4800.00	0.0

Subtotal 22308.00

#### E. Travel

- Domestic travel
- Travel to, from, and on sites

7200.00	0.0
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#### H. Total Direct Costs

108323.00	13054.00
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#### I. Indirect Costs, 44.95% of A

23531.26	5483.86
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#### J. Total Costs

131854.26	18537.86
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Phenology and Function of Sonoran Annuals

1/10 Mar-Months

N.S.F. Grantee

Cal Acad Su Cal Acad Su N.S.F. Grantee

A. Salaries and Wages

1. Senior Personnel

(a) Faculty Associates:

D. Patten (2/9 A/Y)

0 10 0 0 10 0 1400.00 1400.00

2. Other Personnel

(a) Graduate Students:

Research Assistant (12 Months, 1/2 Time)

60 0 0 0 0 0 3600.00 0.0

Subtotal 5000.00

B. Fringe Benefits

Payroll Expenses

300.00 84.00

C. Equipment and Permanent Facilities

Bomb Calorimeter

Drying Oven

Wiley Mill

2 Plexiglas Plant Chambers

1400.00 0.0  
200.00 0.0  
350.00 0.0  
350.00 0.0

Subtotal 2400.00

D. Expendable Supplies

Pellet Press

Screening, Coleman Moisture Blocks,  
Glassware, Chemicals, Tubing, Etc.

100.00 0.0  
500.00 0.0

Arizona State University

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5.2.2.-2

N.S.F. Grantee

E. Travel

1. Domestic Travel:

Travel (to and from Field Sites)  
6000 Miles @ .10/Mile

600.00 0.0

H. Total Direct Costs

8800.00 1484.00

I. Indirect Costs, 55.60% of A

2780.00 778.39

J. Total Costs

11580.00 2262.39

Productivity and Water Stress in Cacti

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	1/10 Man-Months- N.S.F. Grantee					N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su	
A. Salaries and Wages							
1. Senior Personnel							
(a) Faculty Associates							
D. Patten (2/9 A/Y)	0	11	0	0	10	0	1400.00
2. Other Personnel							
(a) Graduate Students							
Graduate Assistant	0	45	30	0	0	0	3600.00
Subtotal							5000.00
B. Fringe Benefits							300.00
C. Equipment and Permanent Facilities							84.00
Battery-Operated MV Recorder							800.00
Telethermometer (11 Pt. Scanner)							400.00
D. Expendable Supplies							600.00
E. Travel							0.0
Domestic Travel							600.00
6000 Mi. @ .10/Mi.							0.0
H. Total Direct Costs							7700.00
I. Indirect Costs, 55.60% of A							1484.00
J. Total Costs							2780.00
							778.39
							10450.00
							2262.00

5.2.3.-1

Autecological Studies of Atriplex confertifolia, Eurotia lanata and Artemisia tridentata

1/10 "Mini-Months"

N.S.F.      Grantee

Cal Acad Su	Cal Acad Su	N.S.F.	Grantee

### A. Salaries and Wages

## 1. Senior Personnel

(a) Faculty Associates

**Project Leader: Martyn M. Caldwell (20%)**

## 2. Other Personnel

(a) Graduate Students

Graduate Assistant

(b) Technical

Technician (1/3 Time)

(c) Hourly Labor

Part-Time Help

Subtotal

7300.00

### B. Fringe Benefits

680.00

295.00

### C. Equipment and Permanent Facilities

## 12-Point Potentiometric Recorder

## Microvoltmeter

1500.00

Subtotal

1900.00

	N.S.F.	Grantee
D. Expendable Supplies		
Instrument Repairs and Maintenance	400.00	0.0
Misc. Wire, Tuting, Chem. Supplies	500.00	0.0
Lumber, Net, Glass, Bulbs, Etc.	550.00	0.0
Chart Paper	125.00	0.0
Greenhouse Maintenance (Power, Etc.)	300.00	0.0
Large Plant Containers	150.00	0.0
Subtotal	2025.00	
E. Travel		
Domestic Travel		
52 Round Trips to Curlew Valley		
200 Miles @ .10/Mile	1040.00	0.0
3 Round Trips to Pine Valley, Utah with		
Large Truck for Transporting Plants		
800 Miles @ .20/Mile	480.00	0.0
Subtotal	1520.00	
H. Total Direct Costs	13425.00	3245.00
I. Indirect Costs, 54.45% of A	3974.84	1606.27
J. Total Costs	17399.84	4851.27

Biomass and Nutrient Dynamics of Some Major Cold Desert Shrubs

1/10 Man-Months  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su

N.S.F. Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

Project Leader: N. E. West (12%)

0	0	0	0	0	10	0	0.0	2000.00
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## 2. Other Personnel

## (a) Research Associates, Postdoctoral

P. J. Goodman (50%, Jan, to June)

0	0	0	0	0	45	0	0.0	3000.00
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## (b) Technical

Technician (2/3 Time)

80	0	0	0	0	0	0	5000.00	0.0
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## (c) Hourly Labor

Part-Time Help

20	0	0	0	0	0	0	750.00	0.0
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Subtotal 5750.00

## B. Fringe Benefits

537.50 500.00

## C. Equipment and Permanent Facilities

Stainless Steel Ball Mill

Stainless Steel Wiley Mill

Soil Grinder

440.00

940.00

200.00

Subtotal 1580.00

	N.S.F.	Grantee
D. Expendable Supplies		
A. A. Spectrophotometer Operation	800.00	0.0
Wet Chemistry Supplies	350.00	0.0
Lumber, Net, Glass, Etc.	250.00	0.0
Glassware	300.00	0.0
Platinum Crucibles	150.00	0.0
Portable Vacuum Cleaner	90.00	0.0
Subtotal	1940.00	
E. Travel		
Domestic Travel		
50 Round Trips to Curlew Valley 200 Miles @ .10/Mile	1000.00	0.0
H. Total Direct Costs	10807.50	5503.00
I. Indirect Costs, 54.45% of A	3130.87	2722.49
J. Total Costs	13938.37	8222.49

# Growth and Development of *Sitanion hystrix* and *Poa sandbergii*

Man - 1/10 Months  
N.S.F.      Grantee  
Cal Acad Su Cal Acad S

5.2.6.-1

A. Salaries and Wages															
1. Senior Personnel															
(a)	Faculty Associates														
	M. Hironaka,	3 Mos.						0	0	0	30	0	0	0.0	2375.00
	E. W. Tisdale,	1 1/2 Mos.						0	0	0	15	0	0	0.0	2450.00
2. Other Personnel															
(a)	Graduate Students														
	Graduate Assistance							0	45	30	0	0	0	3200.00	0.0
(b)	Secretarial-Clerical														
	Secretarial Assistance, 1 Mo.							0	0	0	10	0	0	0.9	375.00
(c)	Hourly Labor														
	Irregular Help							150	0	0	0	0	0	4000.00	0.0
	Subtotal						7200.00						0.0		873.75
B. Fringe Benefits (15% of Faculty Salaries)															
C. Equipment and Permanent Facilities															
	Thermoelectric Unit and Accessories														
	Cooling Unit												250.00		0.0
	Thermocouple Psychrometer												500.00		0.0
	Subtotal						1250.00						500.00		0.0
D. Expendable Supplies															
	Plot Supplies, Chemicals, Film, Etc.														
	Gas and Oil												500.00		0.0
	Exclosure Material												200.00		0.0
	Misc. Items												500.00		0.0
	Subtotal						1700.00								



	N.S.F.	Grantee
E. Travel		
Domestic Travel:		
Pickup Rental and Mileage	950.00	0.0
Subsistence	1000.00	0.0
Univ. Vehicle 4,000 Miles @ .10/Mile		
(Other than Rented Vehicle)	0.0	400.00
Subtotal		1950.00
H. Total Direct Costs	12100.00	7473.75
I. Indirect Costs, 20.96% of H	2536.15	1546.49
J. Total Costs	14636.15	9040.24

Distribution and Balance of Biomass and Nutrients in Desert Shrub Ecosystems

	Man - 1/10 Months																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							</
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Grantee

N.S.F.

E. Travel

Domestic Travel:

Travel to Study Areas

Other Costs

Miscellaneous

Computer and Biometric Costs

H. Total Direct Costs

I. Indirect Costs, 44.95% of A

J. Total Costs

0.0

300.00

1635.00

10860.00

674.24

3281.34

2309.24

14141.34

University of Arizona

Growth and Development of Haplopappus tenuisectus, Burroweed,  
as a Function of Soil Moisture and Air Temperature Regimes

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5.2.8.-1

Man - 1/10 Month  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su N.S.F. Grantee

A. Salaries and Wages

1. Senior Personnel

(a) Faculty Associates  
Project Leader: Dwight R. Cable  
(Federal Employee)  
Consultant, Ervin M. Schmutz

0 0 0 2 0 0 0.0 350.00

2. Other Personnel

(a) Graduate Students.  
Graduate Assistant  
(b) Technical  
Field Assistant

60 0 0 0 0 0 2500.00 0.0

40 0 0 0 0 0 1400.00 0.0

Subtotal 4900.00

B. Fringe Benefits, 6.5%

318.00 23.00

D. Expendable Supplies

Tubes and Installation

500.00 0.0

E. Travel

Domestic Travel

Pickup Mileage

500.00 0.0

H. Total Direct Costs

6218.00 373.00

I. Indirect Costs, 44.95% of A

2202.54 157.32

J. Total Costs

8420.54 530.32

Water and Temperature Effects on Net Primary Productivity and  
Apparent Photosynthesis in *Oryzopsis hymenoides* and *Stipa comata*

P-71

5.2.9.-1

	Man - 1/10 Months N.S.F. Grantee										Grantee
	Cal Acad Su Cal Acad Su										N.S.F.
A. Salaries and Wages											
1. Senior Personnel											
(a) Faculty Associates											
L. C. Pearson (2 1/2 Months Summer)	0	0	25	0	0	0	0	0	3250.00	0.0	
2. Other Personnel											
(a) Pre-Baccalaureate Students											
Student Help (4 Throughout Summer, Two											
Part-Time During A/Y)	100	0	0	0	0	0	0	0	5270.00	0.0	
Subtotal	8520.00										
B. Fringe Benefits									409.00	0.0	
C. Equipment and Permanent Facilities											
2 Thermohygrographs									400.00	0.0	
D. Expendable Supplies											
Miscellaneous									300.00	0.0	
E. Travel											
Domestic Travel											
Travel Including Truck for Hauling Water									900.00	0.0	
H. Total Direct Costs									10529.00	0.0	
I. Indirect Costs									426.00	0.0	
J. Total Costs									10955.00	0.0	

The Effects of Environmental Factors on Rates of  
Primary Production of Two Desert Grass Species.

P-71

5.2.10.-1

Man - 1/10 Months  
N.S.F.      Grantee  
Cal Acad Su Cal Acad Su

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

Principal Investigator: G. Cunningham  
(2 Months Summer)

0   0   20   0   0   0   2600.00   0.0

## 2. Other Personnel

## (a) Graduate Students

1 Research Assistant (9 Mos. 1/2  
Time) (2 Mos. Full Time)

0   45   20   0   0   0   4250.00   0.0

Subtotal      7050.00

## B. Fringe Benefits

254.00   0.0

## C. Equipment and Permanent Facilities

2 Constant Temp. Circulators, Laudark -2/R  
Gas Exchange Chamber Construction  
Spectroradiometer ISCO Model SK 1350 S  
Soil Psychrometer, Lepco

1250.00   0.0  
2000.00   0.0  
2290.00   0.0  
560.00   0.0

Subtotal      6100.00

D. Expendable Supplies  
Miscellaneous

1000.00   0.0

## H. Total Direct Costs

14404.00   0.0

## I. Indirect Costs, 41.00% of A

2890.49   0.0

## J. Total Costs

17294.49   0.0

Rate of Transport of Photosynthate of Root Systems of Desert Shrubs

Man - 1/10 Months  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su

N.S.F. Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

Arthur Wallace  
S. Bamberg (Univ. Nevada)

## 2. Other Personnel

## (a) Non-Faculty Professionals, Other

R. T. Ashcroft - 1 Month

## B. Fringe Benefits

## D. Expendable Supplies

## Miscellaneous Supplies

## E. Travel

## Domestic Travel

## Travel To Site

## H. Total Direct Costs

## I. Indirect Costs, 44.00% of A

## J. Total Costs

1.0	0	0	0	0	0	825.00	0.0
						82.00	0.0
						1000.00	0.0
						500.00	0.0
						2407.00	0.0
						363.00	0.0
						2770.00	0.0

University of California at L.A.

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Rates of Gaseous CO<sub>2</sub> and H<sub>2</sub>O Exchange in Mojave and Great Basin Shrub Species

	1/10 Man-Months						N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su		
A. Salaries and Wages								
1. Senior Personnel								
(a) Faculty Associates								
S. Bamberg (Univ. Nevada-D.R.I.)								
A. Wallace (5% of time)	0	0	0	6	0	0	0.0	1150.00
V. Hale (25% time, A.E.C.)								
2. Other Personnel								
Pre-baccalaureate students	60	0	0	0	0	0	2400.00	0.0
Hourly Labor								
Subtotal								2400.00
B. Fringe Benefits (10% Faculty Salaries)							0.0	115.00
D. Expendable Supplies Miscellaneous Supplies							1000.00	0.0
E. Travel								
Domestic Travel							500.00	0.0
Travel to site								
H. Total Direct Costs							3900.00	1265.00
I. Indirect Costs, 44.00% of A							1055.99	505.99
J. Total Costs							4955.99	1770.99

5.2.12.-1



Root and Shoot Growth of Grayia spinosa and Hilaria jamesii, Hot Creek Valley, Nevada

Man - 1/10 Months

N.S.F. Grantee

Cal Acad Su Cal Acad Su

N.S.F.

Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

Principal Investigator: Paul Tuellez

6 0 0 10 0 0

1500.00

## 2. Other Personnel

## (a) Graduate Students

Graduate Research Assistant (Half-time)

50 0 0 0 0 0

0.0

## (b) Pre-Baccalaureate Students

Student Research Assistance

20 0 0 0 0 0

0.0

Subtotal

5250.00

## B. Fringe Benefits

6-1/2 Per Cent of Professional Salaries

84.50

## D. Expendable Supplies

Supplies and Miscellaneous

500.00

0.0

## E. Travel

Domestic Travel

Travel and Per Diem

2000.00

0.0

## H. Total Direct Costs

7750.00

1234.50

## I. Indirect Costs, 45.44% of A+B

2385.59

629.11

## J. Total Costs

10135.59

2013.61

# Growth and Productivity of Winter Annual Plants as a Function of Moisture and Temperatures on the Mojave Desert

Man - 1/10 Months  
N.S.F.      Grantee  
Cal Acad Su Cal Acad S

N.S.F. Grantee

A. Salaries and Wages									
1. Senior Personnel									
(a) Faculty Associates									
19	0	0	1	0	0	2232.00	118.0		
S. Bamberg (2 Months)									
2. Other Personnel									
(a) Graduate Students									
60	0	0	0	0	0	3600.00	0.0		
Research Assistant (half-time)									
Subtotal						5832.00			
B. Fringe Benefits									
Employee Benefits									
						408.24	8.00		
D. Expendable Supplies									
Supplies, Miscellaneous									
						1500.00	0.0		
E. Travel									
Domestic Travel									
						800.00	0.0		
Travel to Site									
H. Total Direct Costs									
						8540.24	126.00		
I. Indirect Costs, 45.44% of A+B									
						2835.56	57.25		
J. Total Costs									
						11375.80	183.25		

Rect Biomass Development in the Sonoran Desert

1/10 Man-Months  
N.S.F.      Grantee

## A. Salaries and Wages

## 1. Senior Personnel

Faculty Associates:

H. Dittmer, 1 Mon. Summer

Cal	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
0	0	0	10	0	5	0	0
0	0	0	0	0	0	1500.00	750.00

## 2. Other Personnel

Graduate Students:

3 Graduate Assistants, Salaries for 3

Summer Months at \$300 per Month each

Technical:

Part Time research assistant at \$40.00

per week for 50 weeks

Subtotal

6200.00

## B. Fringe Benefits

(6½% of Professional Salaries)

97.50 48.75

## D. Expendable Supplies

Miscellaneous for Film Processing

200.00 0.0

## E. Travel

Domestic Travel (Travel expenses on mileage basis for personal cars for field work)

600.00

0.0

## H. Total Direct Costs

7097.50 798.75

## I. Indirect Costs, 36.00% of A

2231.99

269.99

## J. Total Costs

9329.49

1068.74

The Role of Annual Grasses and Forbes in Nutrient and  
Energy Cycles of Great Basin Plant Communities

	1/10 - Man Months					N.S.F.	Grantee
	N.S.F. Grantee						
	Cal Acad Su Cal Acad Su						
A. Salaries and Wages							
1. Senior Personnel							
(a) Faculty Associates	0	0	0	10	0	0.0	1800.00
Cyrus M. McKell (1 Month)							
2. Other Personnel							
(a) Graduate Students	0	45	30	0	0	3600.00	0.0
Research Assistant							
(b) Pre-Baccalaureate Students	40	0	0	0	0	1000.00	0.0
General Labor							
Subtotal						4600.00	
B. Fringe Benefits (10% Contract, 5% Payroll)						460.00	180.00
D. Expendable Supplies						1500.00	0.0
E. Travel							
Domestic Travel						2000.00	0.0
Travel to Sites							
H. Total Direct Costs						8510.00	1980.00
I. Indirect Costs, 54.45% of A						2504.69	980.09
J. Total Costs						11014.69	2960.09

Demography and Individual Growth of *Dipodomys merriami*, *D. microps*  
*D. ordii*, and *Peromyscus maniculatus*

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5.3.2.-1

		Man - 1/10 Months						
		N.S.F.		Grantee			N.S.F.	Grantee
		Cal	Acad	Su	Cal	Acad	Su	
<b>A. Salaries and Wages</b>								
1. Senior Personnel								
(a) Faculty Associates								
Clive D. Jorgensen (1/2 Mo A/Y 1 Mo Sum)	0	0	10	0	5	0	1489.00	546.00
H. Duane Smith (1 Mo A/Y, 2 Mo Summer)	0	0	20	0	10	0	2393.00	903.00
2. Other Personnel								
(a) Graduate Students								
2 Graduate Research Assistants								
(50% A/Y, Full-Time Summer)	0	90	60	0	0	0	3700.00	0.0
(b) Technical								
Technical Assistant (25%, Wage Variable)	30	0	0	0	0	0	835.00	0.0
Subtotal							8422.00	
<b>C. Equipment and Permanent Facilities</b>								
Cages							2000.00	0.0
Balance							200.00	0.0
Freezer							400.00	0.0
Specimen Transport Equipment							300.00	0.0
Subtotal							2900.00	
<b>D. Expendable Supplies</b>								
Wire Fence: 1/4" Mesh, 4 Ft. Wide, 72							3291.00	0.0
Rolls at \$45.71 per Roll							720.00	0.0
5 Ft. Steel Posts: 720 at \$1 per Post							60.00	0.0
Aluminum Wire Ties							245.00	0.0
Rental of Trencher, \$351 Day for 7 Days							14.00	0.0
Rental of Post-Driver, \$2/Day for 7 Days								

N.E.F. 0.0

500.00 0.0

700.00 0.0

300.00 0.0

150.00 0.0

150.00 0.0

200.00 0.0

6330.00

Subtotal

## E. Travel

## Domestic Travel

Vehicle Rental

Vehicle Operation (\$.07/Mile)

Travel to and From Study Sites (\$.11/Mi)

Subsistence Costs

940.00

700.00

500.00

500.00

0.0

0.0

0.0

0.0

Subtotal

2640.00

## H. Total Direct Costs

20292.00

1454.00

## I. Indirect Costs 35.58% A On-Campus, 14.20% Off-Campus

3457.00

517.00

## J. Total Costs

23749.00

1971.00

Diets, Food Preferences and Reproductive Cycles of Some Desert Mammals

P-71

5.3.3.-1

	Man - 1/10 Months				Grantee			
	N.S.F.				N.S.F.			
	Cal	Acad	Su	Cal	Acad	Su	Cal	Acad
A. Salaries and Wages								
1. Senior Personnel								
(a) Faculty Associates								
Project Leaders:								
R.P. Balda (3 Mos. A/Y, 1 Mo. Sum)	0	0	10	0	30	0	1200.00	3200.00
G.C. Bateman (3 Mos. A/Y, 1 Mo Sum)	0	0	10	0	30	0	1200.00	3200.00
T.A. Vaughan (3 Mos. A/Y, 1 Mo. Sum)	0	0	10	0	30	0	1200.00	3200.00
2. Other Personnel								
(a) Graduate Students								
3 Research Assistants (@ \$4,100, Half-	100	0	0	0	0	0	12300.00	0.0
Time, C/Y)								
Subtotal								15900.00
B. Fringe Benefits								
Employee Benefits (10.76%)							1711.00	0.0
C. Equipment and Permanent Facilities							0.0	600.00
E. Travel								
Domestic Travel								
Travel - Mileage							2100.00	800.00
Per Diem Allowance							600.00	0.0
Subtotal							20311.00	11000.00
H. Total Direct Costs							5914.56	3203.19
I. Indirect Costs, 29.12% of H							26225.56	14203.19
J. Total Costs								

# Models of Food Intake and Fat Indices of Desert Biome Rodents

Man - 1/10 Months	
N.S.F.	Grantee
Cal Acad Su	Cal Acad Su
	N.S.F.
	Grantee

### A. Salaries and Wages

## 1. Senior Personnel

(a)	Faculty Associates								
	D. Johnson (10% A/Y, 2 Mos. Summer, 1971)	0	0	20	0	9	0	2500.00	1250.00

2. Other Personnel

[illegible]

### B. Fringe Benefits

Fringe Benefits, 15% Base Pay, Faculty Personnel	375.00	187.50
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### C. Equipment and Permanent Facilities

ICN-Tracerlab Universal Portable Monitor SU-22	175.00	0.0
Probe for Monitor	70.00	0.0
Vacuum Oven (VWR 52335)	250.00	0.0
Burrow Monitors (2 @ \$300 Each)	600.00	0.0

#### D. Expendable Supplies

Supplies: Glassware, Radionuclide, Calorimeter Disks,Bands, Bags, Oxygen, Etc.	750.00	0.0
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	IN.S.F.	Grantee
E. Travel / Domestic Travel	3199.23	0.0
Domestic Travel		
Domestic Travel 10,000 MI @ \$.10/MI	1000.00	0.0
Per Diem (120 Man-Days @ \$7/Day)	840.00	0.0
Subtotal	11563.00	1437.50
H. Total Direct Costs		
I. Indirect Costs, 20.96 % of H	2423.60	300.80
J. Total Costs	13986.60	1738.30

100% of the total cost of the project is covered by the grant. The grant is for the purpose of the project. The grant is for the purpose of the project. The grant is for the purpose of the project.

Growth, Reproductive, and Mortality Rates of Black-tailed Jackrabbits  
(Lepus californicus) as Functions of Environmental Factors and  
Possible Ecotypic Variations

	Man - 1/10 Months										
	N.S.F.					Grantee					
	Cal Acad Su					Cal Acad Su					Grantee
											N.S.F.
A. Salaries and Wages											
1. Senior Personnel											
(a) Faculty Associates											
Project Leaders: Frederic Wagner (5%)	0	0	0	0	0	0	0	0	0	0	850.00
2. Other Personnel											
(a) Research Associates											
Charles Stoddart (33%)	40	0	0	0	0	0	0	0	0	0	0.0
(b) Technical											
Laboratory Technician (25%)	30	0	0	0	0	0	0	0	0	0	0.0
Animal Caretaker (17%)	21	0	0	0	0	0	0	0	0	0	0.0
Subtotal											4200.00
B. Fringe Benefits (10% of A)											85.00
D. Expendable Supplies											1000.00
E. Travel											0.0
Domestic Travel											
Intra- and Interstate											0.0
H. Total Direct Costs											11620.00
I. Indirect Costs, 54.45% of A											2286.89
J. Total Costs											13906.89

Relationship of Reproduction, Mortality, and Growth of Perognathus  
formosus and Other Desert Rodents to Vegetation Production and  
Density, an Experimental Study

	Man - 1/10 Months						
	N.S.F.			Grantee			
	Cal	Acad	Su	Cal	Acad	Su	N.S.F.      Grantee
<b>A. Salaries and Wages</b>							
1. Senior Personnel							
(a) Faculty Associates							
R. M. Chew (1 Month Summer, 2 Months Rest of Year)	0	0	10	0	20	0	1820.00      3640.00
2. Other Personnel							
(a) Research Associates, Postdoctoral Research Associate, 50%	60	0	0	0	0	0	5800.00      0.0
(b) Hourly Labor Labor to do Manipulations of Test Picts	40	0	0	0	0	0	1200.00      0.0
Subtotal	8820.00						
<b>B. Fringe Benefits (6% Salaries)</b>							457.00      218.00
<b>C. Equipment and Permanent Facilities</b>							
Live Traps							1200.00      0.0
Components for Activity Monitors							600.00      0.0
Subtotal	1800.00						
<b>D. Expendable Supplies</b>							500.00      0.0

Grout

N.S.F.

10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041-1042-1043-1044

**Domestic Travel:**

Travel to and from Mercury, Nevada,

**\$65/Trip**

Per Diem in Field, \$7.50/Day

Subtotal	1400.00
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800.00	0.0
--------	-----

600.00 0.0

[illegible]

977.00 3858.00

12977-00	3858-00
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3858.00

### H. Total Direct Costs

I. Indirect Costs, 23.00% of A Off Campus, 38% On-Campus

2025.60; 1383.20

1383:20

J. Total Costs

15002.60

5241.20



	N.S.F.	Grantee
D. Expendable Supplies		
Seed Traps	200.00	0.0
Supplies	300.00	0.0
Banding Materials	250.00	0.0
Subtotal	750.00	
E. Travel		
Domestic Travel		
Travel: 20,000 Miles @ .10/Mile	2000.00	0.0
H. Total Direct Costs	19550.00	709.00
I. Indirect Costs, 44.95% of A	5169.24	292.17
J. Total Costs	24719.24	1001.17

		1/10 - Man Months				N.S.F.		N.S.F.		Grantee	
		Cal	Acad	Su	Cal	Acad	Su	N.S.F.	N.S.F.	Grantee	Grantee
A.	Salaries and Wages										
1.	Senior Personnel										
(a)	Faculty Associates										
	Project Leader: William E. Saul (Full Time 2 Mo. Summer, 8 Hrs./Wk. A/Y)	0	0	0	20	0	18	0	3036.00	2734.00	
2.	Other Personnel										
(a)	Graduate Students										
	Graduate Assistant (1/2 Time A/Y, Full Time Summer)	0	45	20	0	0	0	0	3600.00	0.0	
	Subtotal										
B.	Fringe Benefits (12.3%)								817.00	337.00	
D.	Expendable Supplies										
	Reagents, Preservatives, Glassware, Pens, Slides, Paper, Etc.								350.00	0.0	
E.	Travel										
	Domestic Travel										
	Travel to Hanford, Curlew Valley, Pine Valley, 2200 Miles/Trip, 3 Trips @ .10/Mile								660.00	0.0	
F.	Total Direct Costs								8463.00	3071.00	
I.	Indirect Costs, 28.23% of H								2389.10	866.94	
J.	Total Costs								10852.10	3937.94	

Comparative Ecology of Desert Ground Squirrels

P-71

1/10 - Man Months  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su N.S.F. Grantee

A. Salaries and Wages

1. Senior Personnel

(a) Faculty Associates  
Project Leader: W. O. Wirtz, 2 Months  
Summer, 4 Months A/Y.

0 0 0 20 0 40 0 2000.00 4000.00

2. Other Personnel

(a) Graduate Students  
Research Assistant, Student Rate, Based  
on 10 Hr./Wk. for One Year

30 0 0 0 0 0 0 925.00 0.0

Subtotal 2925.00

C. Equipment and Permanent Facilities

Live Traps, National No. 202  
Telemetry Equipment, Including Receiver  
and 15 Transmitters for Body Temperature  
Meteorological Equipment: Hygrothermographs,  
Solar Radiation Recorder, Telethermometer

577.50 0.0

2047.50 0.0

934.50 0.0

Subtotal 3559.50

D. Expendable Supplies

Chemicals, Dyes, Bait, Batteries,  
Instrument Charts, Tags, Film,  
Ammunition, Animal Maintenance

400.00 0.0

5.3.9.-1



N.S.F.      Grantee

## E. Travel

## Domestic Travel

Travel for Field Work in 3 Separate  
Localities393.75      0.0  
825.00      0.0

Subtotal      1218.75

## H. Total Direct Costs

8103.25      4000.00

I. Indirect Costs, 29.24% of H (Including  
Fringe Benefits)

2369.38      1169.59

## J. Total Costs

10472.63      5169.59

Population Studies of the Desert Cottontail (Sylvilagus auduboni),  
Black-tailed Jackrabbit (Lepus californicus) and Allen's Jackrabbit  
(Lepus alleni) in the Sonoran Desert

	1/10 - Man Months						
	N.S.F.		Grantee				
	Cal	Acad	Su	Cal	Acad	Su	N.S.F.      Grantee
<b>A. Salaries and Wages</b>							
1. Senior Personnel							
(a) Faculty Associates							
Charles R. Hungerford (Part Time)	0	0	0	0	2	0	0.0      425.00
Charles H. Lowe (Part Time)	0	0	0	0	2	0	0.0      425.00
2. Other Personnel							
(a) Graduate Students							
2 Graduate Students Full Time Two							
Summer Months	0	90	40	0	0	0	8640.00      0.0
Subtotal							8640.00
<b>B. Fringe Benefits</b>							
Payroll Taxes and Insurance, 9% of Salary							778.00      77.00
<b>C. Equipment and Permanent Facilities</b>							
Traps and Batteries							775.00      0.0
<b>D. Expendable Supplies</b>							
Markers, Tools, Converters, Night-Lights, Tapes, Fittings, Baits, Preservatives, Etc.							800.00      0.0

Grantee

N.S.F.

E. Travel

Domestic Travel:

To and From the Two Sites, 10 Cents/Mile

792.00

0.0

H. Total Direct Costs

11735.00

927.00

I. Indirect Costs, 44.95% of A On, 29.73% Off-Campus

2766.00

273.00

J. Total Costs

14551.00

1300.00

Pelage and Microhabitat Insulation of Desert Biome Rodents

1/10 Man-Months  
N.S.F.      Grantee

	Col	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
<b>A. Salaries and Wages</b>								
1. Senior Personnel								
(a) Faculty Associates								
Project Leader: J.H. Ferguson								
(10% A/Y, 2 Mos. Summer)								
	0	0	20	0	10	0	2400.00	1200.00
Co-Investigator: D.R. Johnson								
(5% C/Y)								
	0	0	0	5	0	0	0.0	636.00
Subtotal							2400.00	
<b>B. Fringe Benefits</b>								
(Project Leader 14% Base Pay)								
							336.00	168.00
<b>C. Equipment and Permanent Facilities</b>								
1. YSI Telethermometer								
							395.00	0.0
2. Laboratory recorder for telethermometer								
							801.00	0.0
3. CO <sub>2</sub> analyzer								
							150.00	0.0
4. Temperature cabinet (0-50 Deg F;								
already on hand)								
							0.0	450.00
Low temperature cabinet (on hand)								
							0.0	5450.00
5. Flowmeter (on hand)								
							0.0	44.00
Subtotal							1346.00	
<b>D. Expendable Supplies</b>								
1. Radio receiver								
							35.00	0.0
2. Probes for telethermometer								
							130.00	0.0
3. Chart paper for recorder								
							32.50	0.0
4. Chemicals (Drierite and Ascarite)								
							20.85	0.0
5. Temp. transmitters (\$12.00 ea.)								
							120.00	0.0
Subtotal							338.35	

Grantee

N.S.F.

E. Travel  
 Domestic Travel Mileage (10,000 at  
 10/mi) Per Diem (food and lodging  
 90 days at \$25.00/day)  
 Subtotal 2940.00

H. Total Direct Costs

I. Indirect Costs, 20.96% of H

J. Total Costs

1000.00	0.0
1940.00	0.0
7360.35	7948.00
1542.72	1665.90
8903.07	9613.90

Demography and Bioenergetics of Herbivorous Ants in a Desert  
Ecosystem as Functions of Vegetation and Soil Type, and of  
Weather Variables

P. 71

1/10 - Man Months  
N.S.F.      Grantee  
Cal Acad Su   Cal Acad Su

N.S.F.      Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

Project Leader: W. G. Whitford (20% C/Y)  
Ellis Huddleston (Texas Tech. Univ., 10% C/Y)

3180.00

0.0

0

0

0

0

0

0

0

0

0

0

0

## 2. Other Personnel

## (a) Research Associates

George Ettershank (25% C/Y)

0.0

3900.00

0

0

0

0

0

0

0

0

0

0

0

## (b) Graduate Students

Graduate Research Assistant (50% C/Y)

0.0

4000.00

0

0

0

0

0

0

0

0

0

0

0

2 Graduate Assistants (50% each Two

Months Summer)

0.0

2000.00

0

0

0

0

0

0

0

0

0

0

0

Subtotal

9900.00

## B. Fringe Benefits

468.00

390.00

## D. Expendable Supplies

Back-Hoe Rental

0.0

Miscellaneous Items

0.0

Subtotal

1200.00

5.4.2.-1

N.S.F. Grantee

## E. Travel

Domestic Travel  
 Travel to Study Site 12000 Miles @ .10/Mile  
 Travel Between Sites

1200.00 0.0  
 3000.00 0.0

Subtotal 4200.00

## H. Total Direct Costs

15690.00 5643.00

## I. Indirect Costs, 41.00% of A

4058.99 1303.79

## J. Total Costs

19748.99 4951.79

Colony Distribution of Termites as Related to Population  
Density and Habitat

P-71

	Man - 1/10 Months N.S.F. Grantee					N.S.F. Grantee	
	Cal Acad Su Cal Acad Su						
<b>A. Salaries and Wages</b>							
1. Senior Personnel							
(a) Faculty Associates							
Principal Investigator: William L. Nutting	0	0	0	5	0	0.0	1050.00
2. Other Personnel							
(a) Graduate Students							
Graduate Research Assistants 2@ 4375.00	0	90	60	0	0	8750.00	0.0
(b) Pre-Baccalaureate Students							
Part-Time Student Help 480 Hr. @ 1.75/Hr.	20	0	0	0	0	840.00	0.0
(c) Technical							
Scientific Illustrator, 50 Hr. @ 3.50/Hr.	3	0	0	0	0	175.00	0.0
Subtotal						875.00	55.00
<b>B. Fringe Benefits (9% of Salaries and Wages)</b>							
<b>C. Equipment and Permanent Facilities</b>							
2 Recording Hygrothermographs, Friez, @ 235						470.00	0.0
1 Stereomicroscope, Wild M-5, Magnif. to							
200X, Lamp, Transformer, Swinging Arm Stand						1100.00	0.0
2 Climate Chambers: Gibson, 15 Cu. Ft.							
Refrigerators, Converted with Student						980.00	0.0
Labor @ \$490							
Subtotal							2550.00

5.4.3.-1



N.S.F.                      Grantee

D. Expendable Supplies

4 Saran Screen Cages (16x12x6 Ft.) With  
Pipe Frames @ 100  
4 Night Lights, UV, Biometal, for Cage  
Light Traps @ 10  
Nest Materials, Glassware and Laboratory Supplies  
Film and Film Processing

400.00                      0.0  
40.00                      0.0  
300.00                      0.0  
200.00                      0.0

Subtotal                      840.00

E. Travel

Domestic Travel

Field Studies, Avg. 1 Trip to Sta. Rita  
Exptl. Range/Wk; 4160 Mi. @ .10/Mi. in State

416.00                      0.0

H. Total Direct Costs

14450.00                      1145.00

I. Indirect Costs, 44.95% of A

4439.36                      471.97

J. Total Costs

18889.36                      1616.97

Demography, Foraging Activity of Leaf-Cutter Ants, *Acromyrmex*  
versicolor in Relation to Colony Size and Location, Season,  
Vegetation, and Temperature

		1/10 - Man Months				N.S.F. Grantee		N.S.F.	Grantee		
		Cal	Acad	Su	Cal	Acad	Su				
A. Salaries and Wages											
1. Senior Personnel											
(a) Faculty Associates											
Principal Investigator: Floyd G. Werner											
		0	0	0	3	0	0	0.0	400.00		
2. Other Personnel											
(a) Graduate Students											
Graduate Research Assistant 50% A/Y, 100% Summer											
		0	45	30	0	0	0	4375.00	0.0		
(b) Pre-Baccalaureate Students											
Part-Time Student He'm 200 Hr. @ 1.75/Hr.											
		12	0	0	0	0	0	250.00	0.0		
	Subtotal	4725.00						440.00	90.00		
B. Fringe Benefits (10% Professional, 1% Student)											
D. Expendable Supplies											
								500.00	0.0		
H. Total Direct Costs											
								5665.00	490.00		
I. Indirect Costs, 44.95% of A											
								2123.88	179.79		
J. Total Costs											
								7788.88	669.79		

Demographic Studies of Sagebrush Insects as Functions of Various Environmental Factors

5.4.5.-1

1/10 - Man Months  
 N.S.F. Grantee  
 Cal Acad Su Cal Acad Su N.S.F. Grantee

## A. Salaries and Wages

## 1. Senior Personnel

(a) Faculty Associates  
 T. Hsiao

## 2. Other Personnel

(a) Graduate Students  
 Graduate Assistant (Half-Time)

(b) Technical

Laboratory Technician (3 Months)  
 Subtotal

## B. Fringe Benefits (10% of Contract Salaries

## D. Expendable Supplies

Expendable Supplies and Rearing Equipment

## E. Travel

Domestic Travel

Travel to Sites

## H. Total Direct Costs

## I. Indirect Costs, 54.45% of A

## J. Total Costs

60	0	0	0	0	0	3750.00	0.0
25	0	0	0	0	0	1500.00	0.0
						525.00	0.0
						500.00	0.0
						1000.00	0.0
						7275.00	0.0
						2858.62	0.0
						10133.62	0.0

The Relationship of Desert Plants and Grasshoppers in Population and Systems Ecology

P-71

5.4.6.-1

	1/10 - Man Months					
	N.S.F.		Grantee			
	Cal Acad Su	Cal Acad Su	Cal Acad Su	Cal Acad Su	Grantee	
A. Salaries and Wages						
1. Senior Personnel						
(a) Faculty Associates						
Project Leader: R. E. Pfadt, 1 Month C/Y	0	0	0	0	0.0	
					1417.00	
2. Other Personnel						
(a) Graduate Students						
Graduate Assistant, Half Time	60	0	0	0	0	
					3864.00	
Subtotal					3864.00	
B. Fringe Benefits					98.00	
					41.90	
D. Expendable Supplies						
Insect Cages, Nets, Photographic Supplies, Glassware, Chemicals, Etc.					1500.00	
					0.0	
E. Travel						
Domestic Travel:						
Travel: 20,000 Miles @ .10 Per Mile					2000.00	
Per Diem					1425.00	
					0.0	
Subtotal					3425.00	
H. Total Direct Costs					8887.00	
					1458.90	
I. Indirect Costs, 41.00% of A					1534.23	
					580.96	
J. Total Costs					10471.23	
					2039.86	

Ingestion, Defecation and Growth Rates of Grasshoppers in the Desert Biome

		1/10 - Man Months					
		N.S.F.		Grantee			
		Cal Acad Su	Cal Acad Su	Cal Acad Su	N.S.F.	N.S.F.	Grantee
A. Salaries and Wages							
1. Senior Personnel							
(a) Faculty Associates							
Project Leader: M. A. Brusven							
		0	0	0	10	0	0
						0.0	1200.00
2. Other Personnel							
(a) Graduate Students							
	Graduate Research Assistant	0	45	30	0	0	3180.00
							0.0
(b) Secretarial-Clerical							
	Secretarial Help	0	0	0	10	0	0.0
							480.00
(c) Hourly Labor							
	Part Time Help	25	0	0	0	0	900.00
							0.0
	Subtotal					0.0	150.00
B. Fringe Benefits (15% of Faculty Salaries)							
							4080.00
C. Equipment and Permanent Facilities							
	1 Recording Hygrothermograph					235.00	0.0
	1 Parr Oxygen Bomb Calorimeter					760.00	0.0
	1 Controlled Temperature Chamber					450.00	0.0
	Subtotal						1445.00
D. Expendable Supplies							
	Glassware, Cages, Laboratory Supplies and Misc. Expendables					750.00	0.0

	N.S.F.	Grantee
E. Travel		
1. Domestic Travel:		
Field Studies, 3000 Miles @.10/Mile	300.00	0.0
H. Total Direct Costs	6575.00	1773.10
I. Indirect Costs, 20.96% of H	1373.11	366.79
J. Total Costs	7953.11	2116.79

Respiration Rates of Grasshoppers and Other Arthropods

F-10

5.4.8.-1

1/10 - Man Months  
 N.S.F. Grantee  
 Cal Acad Su Cal Acad Su N.S.F. Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

Project Leader: H. W. Smith

	0	0	0	10	0	0	0.0	1400.00

## 2. Other Personnel

## (a) Graduate Students

Graduate Student (or Part-Time Technician)

	0	45	30	0	0	0	3850.00	0.0

## (b) Secretarial-Clerical

Secretarial Assistance

	20	0	0	0	0	0	400.00	0.0

## (c) Hourly Labor

Part-Time Help

	25	0	0	0	0	0	800.00	0.0

Subtotal

5050.00

## B. Fringe Benefits (15% of Faculty Salary)

	0.0	210.0

## C. Equipment and Permanent Facilities

Small Items (Under \$100.00)

	250.00	0.0

## D. Expendable Supplies

Depreciation (Supplied Equipment)

	0.0	1000.00

N.S.F.      Grantee

## E. Travel

## Domestic Travel

To Field Site, 3000 Miles @ .10/Mile  
 Subsistence, 10 Days @ \$12

300.00      0.0  
 120.00      0.0

Subtotal      420.00

## H. Total Direct Costs

5720.00      2610.00

## I. Indirect Costs, 20.96% of H

1198.91      547.05

## J. Total Costs

6918.91      3157.05



Bioenergetics and Distribution of Pogonomyrmex Harvester Ants in the  
Desert Ecosystem

	1/10 Man-Months						N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su		
A. Salaries and Wages								
1. Senior Personnel								
(a) Faculty Associates:								
G.F. Knowlton (35%)	35	0	0	0	0	0	4000.00	0.0
T.H. Hsiao (5%)	0	0	0	0	6	0	0.0	700.00
2. Other Personnel								
(a) Graduate Students:								
Graduate Research Assistant	0	45	30	0	0	0	4000.00	0.0
Subtotal								
							8000.00	
B. Fringe Benefits (10% Contract Salaries)								70.00
C. Equipment and Permanent Facilities								
Supplies and small equipment							600.00	0.0
Digging equipment, rental							200.00	0.0
Subtotal								
							800.00	
E. Travel								
Domestic Travel							1000.00	0.0
H. Total Direct Costs							10600.00	770.00
I. Indirect Costs, 54.45% of A							4355.99	381.14
J. Total Costs							14955.99	1151.14

Nitrification Rates in Arid Area (Western Desert) Soils

P-71

5.5.2.-1

1/10 - Man Months						
N.S.F.	Grantee					
Cal Acad Su	Cal Acad Su	N.S.F.	Grantee			

## A. Salaries and Wages

## 1. Senior Personnel

## (a) Faculty Associates

J. Skujins 10% of Time

12	0	0	0	0	0	1500.00	0.0
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## 2. Other Personnel

## (a) Graduate Students

Research Assistant, Half-Time

60	0	0	0	0	0	3300.00	0.0
----	---	---	---	---	---	---------	-----

## (b) Hourly Labor

Laboratory Help

40	0	0	0	0	0	1000.00	0.0
----	---	---	---	---	---	---------	-----

Subtotal

5800.00

## B. Fringe Benefits (10% of Contract, 5% Payroll)

## D. Expendable Supplies

500.00	0.0
1000.00	0.0

## E. Travel

Domestic Travel

Field Travel

400.00	0.0
--------	-----

## H. Total Direct Costs

7730.00	0.0
---------	-----

## I. Indirect Costs, 54.45% of A

3158.09	0.0
---------	-----

## J. Total Costs

10888.09	0.0
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## Gaseous Losses of Nitrogen from the Soil of Semi-arid Regions

A. Salaries and Wages	3/10 Man-Months				N.S.F.	Grantee
	Cal	Acad	Su	Cal		
1. Senior Personnel						
(a) Faculty Associates:						
A. Neil MacGregor	0	0	0	10	0	1000.00
T. C. Tucker	0	0	0	10	0	1500.00
2. Other Personnel						
(a) Graduate Students:						
Research Assistant (7.5 Mo., G/Y)	75	0	0	0	0	0.0
(b) Technical:						
Technical Help (1140 Hrs. at \$1.75/hr)	70	0	0	0	0	0.0
Subtotal						7000.00
D. Expendable Supplies						
Supplies and Equipment (including maintenance costs for mass spectrometer and gas chromatograph)						3000.00
E. Travel						
Domestic Travel						50.00
Travel to Biome Sites (500 miles, 10/mi)						0.0
H. Total Direct Costs						10050.00
I. Indirect Costs, 44.95% of A						3146.49
J. Total Costs						13196.49

Nitrogen Fixation Rates of Indigenous Desert Bacteria

	1/10 - Man-Months N.S.F. Grantee				N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su
A. Salaries and Wages						
1. Senior Personnel						
(a) Faculty Associates						
Roy M. Johnson 2 Months, Summer	0	0	20	0	0	3000.00
						0.0
2. Other Personnel						
(a) Graduate Students						
Research Assistant 1/2 Time, nine Months Full Time Summer	0	45	30	0	0	3500.00
						0.0
(b) Technical						
Technician - 10 Hrs/Wk	30	0	0	0	0	850.00
						0.0
Subtotal						7350.00
B. Fringe Benefits						
6% of Faculty Salaries					441.00	0.0
C. Equipment and Permanent Facilities						
Gas Chromatography Apparatus and Recorder					4000.00	0.0
D. Expendable Supplies						
Media, Glassware					1500.00	0.0
H. Total Direct Costs						0.0
I. Indirect Costs, 55.60 % of A					13291.00	0.0
					4086.59	0.0
J. Total Costs					17377.59	0.0

Proteolytic Activity of Soil Microorganisms

	1/10 - Mar Months		N.S.F. Grantee		N.S.F. Grantee	
	Cal Acad Su	Cal Acad Su	Cal Acad Su	Cal Acad Su	N.S.F.	Grantee
A. Salaries and Wages						
1. Senior Personnel						
(a) Faculty Associates						
R. T. O'Brien, 20% A/Y, 2 Mo. Summer	0	0	20	0	18	0
					3064.00	2923.00
2. Other Personnel						
(a) Graduate Students						
1 Graduate Research Assistant (II),						
50% of Time, 11 Mos.	55	0	0	0	0	0.0
					3644.00	0.0
Subtotal						6703.00
B. Fringe Benefits						
New Mexico Retirement, 65% of Staff					199.00	190.00
FICA, 4.8% of Applicable Staff Salary					0.0	75.00
Insurance 1% of Staff					31.00	29.00
Insurance 1% of Graduate Res. Assts.					36.00	0.0
Subtotal						266.00
D. Expendable Supplies						
Miscellaneous Supplies					1000.00	0.0
H. Total Direct Costs					7974.00	3217.00
I. Indirect Costs, 41.00% of A					2750.27	1198.42
J. Total Costs					10724.27	4415.42

5.5.5.-1

Utah State University

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5.5.6.-1

The Role of Algae in Crust Formation and Nitrogen Cycling in Desert Soils

A. Salaries and Wages	1/10 Man-Months				N.S.F.	Grantee
	Cal	Acad	Su	Cal Acad Su		
1. Senior Personnel						
(a) Faculty Associates:						
Raymond I. Lynn (1 Month)	0	0	0	10	0	0
					0.0	1100.00
2. Other Personnel						
(a) Graduate Students:						
2 Graduate Research Assistants	0	0	0	0	0	0
					6600.00	0.0
Subtotal						
					6600.00	110.00
B. Fringe Benefits						
C. Equipment and Permanent Facilities						
1. Stereoscopic Microscope					300.00	0.0
2. Centrifuge					200.00	0.0
3. Portable Generator					270.00	0.0
4. Refrigerator					250.00	0.0
5. Incubator (controlled light and temp.)					1500.00	0.0
Subtotal						
						2520.00
D. Expendable Supplies						
Glassware, Midial components, etc.					900.00	0.0

Utah State University

The Radiative Environment and the Surface Temperature on  
a Microscale in Sagebrush Vegetation

1/10 - Man-Months  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su

P-71

5.6.2.-1

Grantee

N.S.F.

Cal Acad Su Cal Acad Su

A. Salaries and Wages

1. Senior Personnel

(a) Faculty Associates

Project Leader: Inge Dirmhirn (10%)

2. Other Personnel

(a) Technical

Technician, Charles Craw (3 Months)

Subtotal

3000.00

B. Fringe Benefits

Fringe Benefits (10% of A)

160.00

300.00

C. Equipment and Permanent Facilities

Barnes Model PRT - 4 Precision Radiation  
Thermometer. Field of View 2 Degree  
Spectral Range 8-12 Microns

0.0

3900.00

Subtotal

3900.00

D. Expendable Supplies

Parts for Instruments to be Built in-House  
Expenses and Supplies

0.0

270.00

200.00

H. Total Direct Costs

1760.00

7670.00

I. Indirect Costs, 54.45% of A

871.19

1633.49

J. Total Costs

2631.19

9303.49

# Factors Affecting the Movement and Distribution of Anions in Desert Soils

M. S. F. Grantee

Cal Acad Su Cal Acad Su

N.S.F.

Grantee

### A. Salaries and Wages

1. Senior Personnel  
(a) Faculty Associates

J. J. Jurinak

A. R. Southard

R. J. Hanks

## 2. Other Personnel

(a) Technical

1 Technician or 2 Research Assistants

54

0



00

## B. Fringe Benefits

Fringe Benefits (10% of Salaries)

789.00

00

#### D. Expendable Supplies

Supplies, Miscellaneous

1503.00

0.0

E. Travel

## Domestic Travel

Travel to Site

500.00

0.0

H. Total Direct Costs

10580.00

0.0

I. Indirect Costs, 54.45% of A

4247.09

0.0

### J. Total Costs

14827.09

0.0



# Predicting Nitrogen Transformations and Osmotic Potentials in Warm Desert Soils

1/10 - Man-Months

N.S.F. Grantee

Cal Acad Su Cal Acad Su

M. S. F.

Grantee

5.6.4.-1

A. Salaries and Wages									
1. Senior Personnel									
(a) Faculty Associates									
Gordon Dutt									
T. C. Tucker									
2. Other Personnel									
(a) Graduate Students									
2 Graduate Assistants - 1/2 Time									
(b) Pre-Baccalaureate Students									
1 Student Assistant (Wages)									
Subtotal									
7500.00									
B. Fringe Benefits									
Fringe Benefits (6.5%)									
428.00									
D. Expendable Supplies									
Operations									
300.00									
E. Travel									
Domestic Travel									
Travel to Site									
200.00									
G. Other Costs									
Computer Costs									
Computer									
2000.00									
H. Total Direct Costs									
10488.00									
I. Indirect Costs, 44.95% of A									
3371.24									
J. Total Costs									
13859.24									

		1/10 - Man-Months				N.S.F.		N.S.F.		Grantee
		Cal Acad Su				Cal Acad Su		N.S.F.		Grantee
A.	Salaries and Wages									
1.	Senior Personnel									
(a)	Faculty Associates									
	Project Leader: H. K. Qashu 3 Weeks	0	0	0	7	0	0	0.0		1000.00
2.	Other Personnel									
(a)	Research Associates, Postdoctoral									
	Research Associate (1) (50% A/Y, 100% Sum)	0	45	30	0	0	0	6000.00		0.0
	Subtotal									
B.	Fringe Benefits									
	Fringe Benefits 9% of Salaries and Wages							540.00		90.00
D.	Expendable Supplies									
	Psychrometers and Electronic Supplies							500.00		0.0
E.	Travel									
	Domestic Travel									
	Travel to Site							500.00		0.0
G.	Other Costs									
	Computer Costs									
	Computer Services							500.00		0.0
H.	Total Direct Costs							8040.00		1050.00
I.	Indirect Costs, 44.95 % of A							2697.00		449.49
J.	Total Costs							10737.00		1539.49

Water, Radiation and Heat Balance of a Sagebrush-Shadscale Desert

P-71

5.6.6.-1

		1/10 - Man-Months					Grantee	
		N.S.F.					N.S.F.	
		Cal Acad Su Cal Acad Su					Grantee	
A.	Salaries and Wages							
1.	Senior Personnel							
(a)	Faculty Associates							
	G. Ashcroft							
	C. Campbell							
	R. J. Hanks							
	D. L. Wood							
2.	Other Personnel							
(a)	Pre-Baccalaureate Students							
	Labor-Student	120	0	0	0	0	3000.00	0.0
B.	Fringe Benefits							
	Fringe Benefits 5% of A						159.00	0.0
C.	Equipment and Permanent Facilities							
	Net Radiometer - 1						300.00	0.0
	Vapor Sensors - 4						400.00	0.0
	Lysimeter (6X6'X4') - 1						3100.00	0.0
	Installation						500.00	0.0
	Subtotal						4300.00	
D.	Expendable Supplies							
	Paper Tape						200.00	0.0
	Miscellaneous Items						2500.00	0.0
	Subtotal						2700.00	
E.	Travel							
	Domestic Travel							
	Travel to Site						2500.00	0.0
F.	Total Direct Costs						12650.00	0.0
I.	Indirect Costs, 54.45 % of A						1633.49	0.0
J.	Total Costs						14283.49	0.0

University of Nevada - Las Vegas

Standing Crop and Productivity of Marsh Vegetation at Saratoga Springs, California

P-71

5.7.2.-1

1/10 - Man-Months									
N.S.F. Grantee									
Cal Acad Su Cal Acad Su N.S.F. Grantee									
A. Salaries and Wages									
1. Senior Personnel									
(a) Faculty Associates									
W. G. Bradley	0	10	0	0	10	0	1500.00	1500.00	
2. Other Personnel									
(a) Graduate Students									
2 Research Assistants, 50% A/Y	120	0	0	0	0	0	6400.00	0.0	
Subtotal									
B. Fringe Benefits									
(7% of Professional Salary)							105.00	105.00	
D. Expendable Supplies									
Detritus Containers, Outdoor Cages,									
Materials for Building Litter and									
Metabolism Chambers and Apparatus							70.00	0.0	
Glassware, Plastic Bags, Etc.							400.00	0.0	
Reagents							800.00	0.0	
Subtotal									
E. Travel									
Domestic Travel									
6 Trips of 250 Miles Each - 300 Miles @									
\$ .10 per Mile Plus \$5.00/Day							210.00	0.0	
NOTE: A savings on travel due to									
combined trips with validation crew.									
Per Diem (See Validation Proposal)									
H. Total Direct Costs							9485.00	1605.00	
I. Indirect Costs, 45.44 % of A+B							3637.47	729.31	
J. Total Costs							13122.47	2334.31	

Dynamics and Productivity of Aquatic Invertebrates in a Desert Environment

	1/10 - Man-Months					
	N.S.F.		Grantee			
	Cal Acad Su	Cal Acad Su	Cal Acad Su	Cal Acad Su	Grantee	
A. Salaries and Wages						
1. Senior Personnel						
(a) Faculty Associates						
A. Gaufin	0	0	10	0	3	
					1800.00	
480.00						
2. Other Personnel						
(a) Two Graduate Assistants	0	90	60	0	0	
(b) Secretarial-Clerical						
Typing Reports, Etc.	0	0	0	0	0	
					200.00	
0.0						
0.0						
Subtotal					8000.00	
B. Fringe Benefits					780.00	
48.00						
D. Expendable Supplies						
Supplies - Glassware, Chemicals					900.00	
0.0						
E. Travel						
Domestic Travel					600.00	
Collecting Specimens, Field Observations					0.0	
H. Total Direct Costs					10280.00	
523.00						
I. Indirect Costs, 60.00% of A					4800.00	
238.00						
J. Total Costs					15080.00	
816.00						

Assimilation, Metabolism, and Growth of Utah Chub, Gila atraria

5.7.4.-1

	1/10 - Man-Months					
	N.S.F.		Grantee			
	Cal Acad Su	Cal Acad Su	N.S.F.	Grantee		
A. Salaries and Wages						
1. Senior Personnel						
(a) Faculty Personnel						
T. C. Bjornn (Federal Employee)						
R. L. Wallace, 3 Months	0	20	0	0	10	0
						2200.00
						1100.00
2. Other Personnel						
(a) Graduate Students						
Research Assistant (Half-Time)	60	0	0	0	0	0
						3200.00
						0.0
Subtotal						5400.00
C. Fringe Benefits						
15% of Faculty Salaries						
						300.00
						165.00
D. Expendable Supplies						
4 Fat Extraction Units						500.00
Misc. Equipment and Supplies						500.00
						0.0
						0.0
Subtotal						1000.00
E. Travel						
Domestic Travel						
4 Fish Collection Trips						700.00
Confer with Oregon State University Personnel						200.00
						0.0
						0.0
Subtotal						900.00
H. Total Direct Costs						7630.00
						1265.00
I. Indirect Costs, 20.96 % of H						1599.24
						265.14
J. Total Costs						9229.24
						1530.14

Utah State University

Respiratory Metabolism and Food Habits of Utah Chub, *Gila atraria*

P-11

5.7.5.-1

	1/10 - Man-Months	N.S.F.	Grantee	N.S.F.	Grantee
A. Salaries and Wages					
1. Senior Personnel					
(a) Faculty Associates					
R. Kramer (Federal Employee)					
2. Other Personnel					
(a) Non-Faculty Professionals, Other Full-Time Technologist	120	0	0	0	0
				6500.00	0.0
B. Fringe Benefits					
Staff Benefits (10% of Salaries and Wages)				650.00	0.0
C. Equipment and Permanent Facilities					
Active Respirometers (4)				600.00	0.0
Standard Respirometers (4)				800.00	0.0
Dissolved Oxygen Analyzers (2)				900.00	0.0
Recorders for D. O. Analyzers (2)				2000.00	0.0
Min-O-Cool Tank, W/1 HP Cooler				550.00	0.0
Temperature Controllers, W/Heaters (4)				1200.00	0.0
Fish Holding Tanks				150.00	0.0
Subtotal				6200.00	
D. Expendable Supplies					
Chart Paper (Rec., Thermo and D. O.)				100.00	0.0
Pipe, Fittings, Electrical Wire				200.00	0.0
Miscellaneous				500.00	0.0
Subtotal				800.00	
E. Travel					
Domestic Travel					
Collecting Fish and Hauling Water				200.00	0.0
H. Total Direct Costs				14350.00	0.0
I. Indirect Costs, 54.45 % of A				3539.24	0.0
J. Total Costs				17889.24	0.0

Respiratory Metabolism of Cyprinodon nevadensis

1/10 - Man-Months  
N.S.F.      Grantee  
Cal Acad Su Cal Acad Su      N.S.F.      Grantee

A. Salaries and Wages							
1. Senior Personnel							
(a) Faculty Associates							
Raymond Hock (10%)	12	0	0	0	0	1882.50	0.0
2. Other Personnel							
(a) Pre-Baccalaureate Students							
Undergraduate Assistant (9 Mo. @ 10Hr/Wk.,	0	22	30	0	0	2500.00	0.0
3 Months Full-Time)							
Subtotal						4382.50	
B. Fringe Benefits							
(7% of Professional Salaries)						132.50	0.0
C. Equipment and Permanent Facilities							
Study Chambers (6 @\$50)						300.00	0.0
Van Slyke Blood Gas Apparatus						300.00	0.0
Subtotal						600.00	
D. Expendable Supplies							
Thermometers, Oxygen, Etc.						130.00	0.0
E. Travel							
Domestic Travel							
12 Trips - 250 Miles						300.00	0.0
Per Diem \$24/Day						120.00	0.0
Subtotal						420.00	
H. Total Direct Costs						5665.00	0.0
I. Indirect Costs, 45.44% of A+B						2051.61	0.0
J. Total Costs						7716.61	0.0



## Temperature, and Season

	1/10 - Man-Months	N.S.F.	Cal Acad Su	Cal Acad Su	Cal Acad Su	N.S.F.	Grantee
A. Salaries and Wages							
1. Senior Personnel							
(a) Faculty Associates:							
J. E. Deacon	0	0	0	20	0	0.0	1500.00
2. Other Personnel							
(a) Graduate Students							
Graduate Assistant (1/2 Time 9 Mos. Full-Time 3 Mos.)	0	45	30	0	0	3900.00	0.0
(b) Pre-Baccalaureate Students:							
Undergraduate Assistant (10 Hrs/Week, 36 Weeks @ \$2.50/Hr.)	0	25	0	0	0	900.00	0.0
Subtotal							4800.00
B. Fringe Benefits							
(7% of Professional Salaries)						0.0	105.00
C. Equipment and Permanent Facilities							
Compound Microscope						900.00	0.0
D. Expendable Supplies							
Glassware, Isotope Counting Services, Etc.						1000.00	0.0
H. Total Direct Costs						6700.00	1605.00
I. Indirect Costs, 45.44% of A+B						2181.11	729.31
J. Total Costs						8881.11	2334.31

Energetics and Productivity of Gammarus in Locomotive Springs

P-71

5.7.8.-1

1/10 - Man-Months  
N.S.F. Grantee  
Cal Acad Su Cal Acad Su N.S.F. Grantee

## A. Salaries and Wages

## 1. Senior Personnel

## 2. Other Personnel

## (a) Research Associates

J. Anne Holman (3 Mos.)

## (b) Graduate Students

Graduate Research Assistant

## (c) Hourly Labour

Time Card

30	0	0	0	0	0	2200.00	0.0
0	45	30	0	0	0	3400.00	0.0
27	0	0	0	0	0	800.00	0.0

Subtotal 6400.00

## B. Fringe Benefits

Fringe Benefits (10%)

600.00 0.0

## C. Equipment and Permanent Facilities

Phillipson Microcalorimeter

2000.00 0.0

## E. Travel

Domestic Travel

Travel to and From Springs

600.00 0.0

## H. Total Direct Costs

9600.00 0.0

## I. Indirect Costs, 54.45% of A

3484.79 0.0

## J. Total Costs

13034.79 0.0

Rates of Ingestion and Assimilation in Gammarus lacustris, Hydropsyche sp., and Enallagma sp.

1/10 - Man Months										Grantee
N.S.F. Grantee										
Cal Acad Su Cal Acad Su										
N.S.F.										Grantee
Cal Acad Su Cal Acad Su										
N.S.F.										
A. Salaries and Wages										
1. Senior Personnel										
(a) Faculty Associates:										
G. W. Minshall (5% A/Y)	0	0	0	0	0	4	0	0.0		550.00
2. Other Personnel										
(a) Graduate Students:										
Graduate Research Assistant	0	45	30	0	0	0	0	4000.00		0.0
Subtotal										4000.00
B. Fringe Benefits								192.00		70.00
C. Equipment and Permanent Facilities										
Liquid Scintillation Counter								3200.00		0.0
D. Expendable Supplies										
Radioactive 14C-Bicarbonate, Reference Standard, Planchets, and Special Glassware								250.00		0.0
H. Total Direct Costs								7642.00		620.00
I. Indirect Costs, 28.23% of H								2157.33		175.02
J. Total Costs								9799.33		795.02

## 6. INSTITUTIONAL BUDGETS

These are arranged as follows:

Arizona:	Arizona State University	6.-1
	Northern Arizona University	6.-2
	University of Arizona	6.-3
California:	California State College at Long Beach	6.-4
	Pomona College	6.-5
	San Francisco State College	6.-6
	University of California, Irvine	6.-7
	University of California, Los Angeles	6.-8
	University of California, Riverside	6.-9
	University of Southern California	6.-10
Idaho:	Idaho State University	6.-11
	Ricks College	6.-12
	University of Idaho	6.-13
Nevada:	University of Nevada - Desert Research Institute	6.-14
	University of Nevada at Las Vegas	6.-15
	University of Nevada at Reno	6.-16
New Mexico:	New Mexico State University	6.-17
	University of New Mexico	6.-18
Texas:	Texas Tech University	6.-19
Utah:	Brigham Young University	6.-20
	University of Utah	6.-21
	Utah State University	6.-22
Wyoming:	University of Wyoming	6.-24
Federal Agencies:	U.S. Public Health Service	6.-25



## Northern Arizona University

## A. Salaries and Wages

1/10 - Man Month  
N.S.F. Grantee

	Cal	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
1. Senior Personnel								
3 Faculty Associates	0	0	30	0	90	0	3600.00	9600.00
2. Other Personnel								
3 Graduate Students	180	0	0	0	0	0	12300.00	0.0
Subtotal								15900.00
B. Fringe Benefits							1711.00	0.0
C. Equipment and Permanent Facilities								600.00
E. Travel							2700.00	800.00
H. Total Direct Costs							20311.00	11000.00
I. Indirect Costs, 29.12% of H.							5914.56	3203.19
J. Total Costs							26225.56	14203.19

## University of Arizona

## A. Salaries and Wages

1/10 - Man Months									
N.S.F.		Grantee		N.S.F.		Grantee		N.S.F.	
Cal	Acad	Su	Cal	Acad	Su	Cal	Acad	Su	Grantee
102	0	0	132	9	10	16966.00			24383.00
150	45	30		0	0	21450.00			750.00
195	495	320		0	0	76765.00			0.0
187	0	0		0	0	6690.00			0.0
30	0	0		0	0	3800.00			0.0
113	0	0		0	0	3575.00			0.0
150	0	0		0	0	4500.00			0.0

Subtotal 133746.00

## B. Fringe Benefits

7013.00 927.00

## C. Equipment and Permanent Facilities

30390.00 0.0

## D. Expendable Supplies

33098.00 0.0

## E. Travel

Domestic Travel

12658.00 0.0

## G. Other Costs

Computer Costs

Miscellaneous

2500.00 0.0  
300.00 0.0

Subtotal 2800.00

	Cal Acad Su	Cal Acad Su	N.S.F.	Grantee
H. Total Direct Costs			219710.00	26060.00
I. Indirect Costs			59000.99	11188.11
J. Total Ccst			278710.99	37248.11



## Cal State College at Long Beach

## A. Salaries and Wages

1/10 - Man Months  
N.S.F. Grantee

	Cal	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
1. Senior Personnel								
3 Faculty Associates	0	20	0	0	20	0	4000.00	4000.00
2. Other Personnel								
3 Technical	70	0	0	25	0	0	14000.00	1750.00

Subtotal 18000.00

## C. Equipment and Permanent Facilities

0.0

## D. Expendable Supplies

0.0

## E. Travel

Domestic Travel

0.0

## H. Total Direct Costs

5750.00

## I. Indirect Costs, 24.53% of H.

1410.47

## J. Total Costs

7160.47

## Perona College

## A. Salaries and Wages

1/10 - Man Months  
N.S.F. Grantee

	Cal	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
1. Senior Personnel								
1 Faculty Associate	0	0	20	0	40	0	2000.00	4000.00
2. Other Personnel								
1 Graduate Student	30	0	0	0	0	0	925.00	0.0

Subtotal 2925.00

## C. Equipment and Permanent Facilities

3559.50

## D. Expendable Supplies

400.00 0.0

## E. Travel

Domestic Travel

1218.75

## H. Total Direct Costs

8103.25 4000.00

I. Indirect Costs, 29.24% of H  
(Including fringe benefits)

2369.38 1169.59

## J. Total Costs

10472.63 5169.59

## San Francisco State College

## A. Salaries and Wages

1/10 - Man Months  
N.S.F. Grantee

	Cal	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
1. Senior Personnel								
1 Faculty Associate	0	10	0	0	0	0	1500.00	0.0
D. Expendable Supplies							800.00	200.00
E. Travel								
Domestic Travel							540.00	
H. Total Direct Costs							2840.00	200.00
I. Indirect Costs, 54.35% of A							815.10	0.0
J. Total Costs							3655.10	200.00

## University of California, Irvine

## A. Salaries and Wages

1/10 - Man Months  
N.S.F. Grantee

	Cal	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
1. Senior Personnel								
1 Faculty Associate	0	0	0	0	14	0	0.0	1886.00
D. Expendable Supplies							1000.00	
E. Travel								
Domestic Travel							420.00	
H. Total Direct Costs							1420.00	1386.00
I. Indirect Costs, 44.00% of A							0.0	829.84
J. Total Costs							1420.00	2715.84

## University of California, Los Angeles

## A. Salaries and Wages

1/10 - Man Months  
N.S.F. Grantee

	Cal	Acad	Su	Cal	Acad	Su	N.S.F.	Grantee
1. Senior Personnel								
3 Faculty Associates	60	0	0	52	0	0	9450.00	8600.00
2. Other Personnel								
2 Non-faculty Professionals, Other	70	0	0	0	0	0	7755.00	0.0
Pre-baccalaureate Students	60	0	0	0	0	0	2400.00	0.0
Hourly Labour	30	0	0	0	0	0	2000.00	0.0
Subtotal							21605.00	
B. Fringe Benefits							1920.00	860.00
C. Equipment and Permanent Facilities							25000.00	0.0
D. Expendable Supplies							3000.00	0.0
E. Travel								
Domestic Travel							2000.00	0.0
H. Total Direct Costs							53525.00	9460.00
I. Indirect Costs							9506.17	3783.98
J. Total Costs							63031.17	13243.98

## University of California, Riverside

## A. Salaries and Wages

1/10 - Man Months		N.S.F.		Grantee		N.S.F.		Grantee	
Cal	Acad	Su	Cal	Acad	Su	Cal	Acad	Su	Grantee
0	0	0	36	66	0	10732.00			14633.00
0	180	110	0	0	0	75409.00			0.0
60	0	0	0	0	0	2610.00			0.0
60	0	0	0	0	0	2100.00			0.0
Subtotal						90851.00			

## 1. Senior Personnel

## 8 Faculty Associates

## 2. Other Personnel

## 5 Graduate Students

## 1 Secretarial-Clerical

## 1 Technical

## B. Fringe Benefits

522.00

1900.00

## C. Equipment and Permanent Facilities

72350.00

0.0

## D. Expendable Supplies

8480.00

0.0

## E. Travel

## Domestic Travel

13120.00

0.0

## G. Other Costs

## Communications Costs

## Miscellaneous

2000.00

0.0

2400.00

0.0

Subtotal

4400.00

## H. Total Direct Costs

189723.00

16533.00

## I. Indirect Costs

39974.42

6438.50

## J. Total Costs

229697.42

22971.50

三

## University of Southern California

### A. Salaries and Wages

A. Salaries and Wages	1/10 - Man Months				N.S.F.	N.S.F.	Grantee
	Cal	Acad	Su	Cal			
1. Senior Personnel	0	15	20	0	25	0	3681.00
1 Faculty Associate							
2. Other Personnel	60	0	0	0	0	0	0.0
1 Research Associate, Postdoctoral							0.0
1 Secretarial Clerical	30	0	0	0	0	0	0.0
Hourly Labor	40	0	0	0	0	0	0.0
Subtotal	13,768.00						220.00
B. Fringe Benefits					754.00		0.0
C. Equipment					2400.00		0.0
D. Supplies					1200.00		0.0
E. Travel					1815.00		0.0
Domestic Travel							
H. Total Direct Costs					19937.00		3901.00
I. Indirect Costs, 38% of A on campus,					3905.83		1398.77
23% of A off campus					23842.83		5299.77
J. Total Costs							

## Idaho State University

## A. Salaries and Wages

	1/10 - Man Months				N.S.F.	Grantee
	Cal	Acad	Su	Cal		
1. Senior Personnel	0	15	120	0	96	0
7 Faculty Associates	0	185	100	0	0	0
2. Other Personnel	20	0	0	0	0	0
7 Graduate Students	50	0	0	0	0	0
Pre-Baccalaureate Students	60	0	0	0	0	0
2 Secretarial-Clerical	60	0	0	0	0	0
1 Technical						
Hourly Labour						
Subtotal						49716.00
B. Fringe Benefits					3542.00	1221.00
C. Equipment and Permanent Facilities					25200.00	0.0
D. Expendable Supplies					4300.00	0.0
E. Travel						
Domestic Travel					2460.00	0.0
H. Total Direct Costs					85218.00	13357.00
I. Indirect Costs					24057.02	3770.65
J. Total Costs					109275.02	17127.65



## Ricks College

A. Salaries and Wages	1/10 - Man Months				N.S.F.	Grantee
	Cal	Acad	Su	Cal		
1. Senior Personnel						
1 Faculty Associate	0	0	25	0	0	0.0
2. Other Personnel						
Pre-Baccalaureate Students	180	0	0	0	0	0.0
Subtotal					5270.00	
B. Fringe Benefits					409.00	0.0
C. Equipment and Permanent Facilities					400.00	0.0
D. Expendable Supplies					300.00	0.0
E. Travel						
Domestic Travel					900.00	0.0
H. Total Direct Costs					10529.00	0.0
I. Indirect Costs					426.00	0.0
J. Total Costs					10955.00	0.0

## University of Idaho

## A. Salaries and Wages

	1/10 - Man Months						N.S.F.	Grantee
	N.S.F.		Grantee		Su	Acad		
	Cal	Acad	Su	Cal				
1. Senior Personnel	0	20	50	70	34	0	8500.00	13311.00
8 Faculty Associates								
2. Other Personnel	120	135	90	0	0	0	18033.00	0.0
5 Graduate Students	20	0	0	0	0	0	650.00	0.0
Pre-Baccalaureate Students	10	0	0	0	0	0	400.00	775.00
3 Secretarial-Clerical	12	0	0	0	0	0	400.00	0.0
Technical	200	0	0	0	0	0	5700.00	0.0
Hourly Labour								
Subtotal								
B. Fringe Benefits							1251.00	1859.25
C. Equipment and Permanent Facilities							5136.00	5944.00
D. Expendable Supplies							5938.35	1000.00
E. Travel							10450.00	400.00
Domestic Travel							56458.35	23289.25
H.. Total Direct Costs							11833.62	4881.38
I. Indirect Costs							68291.97	28170.63
J. Total Costs								

33683.00

## University of Nevada, Desert Res. Inst.

## A. Salaries and Wages

	1/10 - Man Months						N.S.F.	N.S.F.	Grantee
	N.S.F.		Grantee						
	Cal	Acad	Su	Cal	Acad	Su			
1. Senior Personnel									
1 Faculty Associate	47	0	0	3	0	0	5581.00		294.00
2. Other Personnel									
1 Graduate Student	60	0	0	0	0	0	3600.00		0.0
1 Secretarial-Clerical	30	0	0	0	0	0	1375.00		0.0
Subtotal									

10556.00

## B. Fringe Benefits

20.52

## D. Expendable Supplies

0.0

## E. Travel

Domestic Travel

0.0

## H. Total Direct Costs

314.32

## I. Indirect Costs

142.82

## J. Total Costs

457.14

## University of Nevada at Las Vegas

A. Salaries and Wages	1/10 - Man Months						N.S.F. Grantee	N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su			
1. Senior Personnel									
9 Faculty Associates	72	10	0	60	10	0	11782.50	9500.00	
2. Other Personnel									
8 Graduate Students	120	45	30	0	0	0	23300.00	0.0	
1 Technical	120	0	0	0	0	0	8000.00	0.0	
Pre-Baccalaureate Students	0	47	30	0	0	0	3400.00	0.0	
Subtotal									46482.50
B. Fringe Benefits							1385.50	335.00	
C. Equipment and Permanent Facilities							11350.00	1200.00	
D. Expendable Supplies							4200.00	100.00	
E. Travel									
Domestic Travel							3625.00	0.0	
H. Total Direct Costs							67043.00	11165.00	
I. Indirect Costs							21751.19	4482.65	
J. Total Costs							88794.19	15647.65	

## University of Nevada at Reno (Inc. Ag. Exp. Sta.)

A. Salaries and Wages	1/10 - Man Months				N.S.F.	Grantee
	Cal	Acad	Su	Cal		
1. Senior Personnel	39	0	0	13	0	0
4 Faculty Associates						
2. Other Personnel	90	0	0	300	0	0
1 Non-faculty Professionals, Other	60	0	0	0	0	0
1 Graduate Student	250	0	0	0	0	0
Pre-Baccalaureate Students						
Subtotal						30113.00
B. Fringe Benefits						943.21
D. Expendable Supplies						22750.00
E. Travel						8133.00
Domestic Travel						0.0
G. Other Costs						2600.00
Computer Costs						0.0
H. Total Direct Costs						71547.21
I. Indirect Costs						14113.76
J. Total Costs						85660.97
						6263.60

## New Mexico State University

## A. Salaries and Wages

	1/10 - Man Months				Acad	Su	N.S.F.	Grantee
	Cal	Acad	Su	Cal				
1. Senior Personnel	60	0	210	96	223	15	26710.00	45741.00
17 Faculty Associates								
2. Other Personnel	30	0	0	0	0	0	3900.00	0.0
1 Research Associate, Postdoctoral	175	45	50	0	0	0	51294.00	0.0
21 Graduate Students	114	0	0	0	0	0	3000.00	0.0
Pre-Baccalaureate Students	90	0	0	0	0	0	3250.00	0.0
2 Secretarial-Clerical	0	0	0	0	0	0	2800.00	0.0
1 Technical								
Subtotal								

Subtotal 90954.00

## B. Fringe Benefits

3875.00 5771.00

## C. Equipment and Permanent Facilities

69600.00 0.0

## D. Expendable Supplies

12700.00 0.0

## E. Travel

8200.00 0.0

## G. Other Costs

3000.00 1000.00

Consultants, Etc.

## H. Total Direct Costs

188329.00 52512.00

## I. Indirect Costs

37291.08 18753.76

## J. Total Costs

225620.08 71265.76

## University of New Mexico

## A. Salaries and Wages

	1/10 - Man Months				N.S.F.		N.S.F.	Grantee
	Cal	Acad	Su	Cal	Acad	Su		
1. Senior Personnel								
1 Faculty Associate	0	0	10	0	5	0	1500.00	750.00
2. Other Personnel								
3 Graduate Students	0	0	90	0	0	0	2700.00	0.0
1 Technical	30	0	30	0	0	0	2000.00	0.0
Subtotal								
								6200.00

## B. Fringe Benefits

97.50 48.75

## D. Expendable Supplies

200.00 0.0

## E. Travel

## Domestic Travel

600.00 0.0

## H. Total Direct Costs

7097.50 798.75

## I. Indirect Costs, 36.00% of A

2231.99 269.99

## J. Total Costs

9329.49 1068.74





## Brigham Young University

## A. Salaries and Wages

	1/10 - Man Months						N.S.F.	Grantee
	N.S.F.			Grantee				
	Cal	Acad	Su	Cal	Acad	Su		
1. Senior Personnel								
1 Principal Investigator	0	0	10	0	5	0	1489.00	744.00
11 Faculty Associates	0	30	110	0	65	0	19510.00	10009.00
2. Other Personnel								
6 Graduate Students	0	135	90	0	0	0	18500.00	0.0
Pre-Baccalaureate Students	180	0	0	0	0	0	4805.00	0.0
2 Technical	150	0	0	0	0	0	10135.00	0.0
Subtotal								
							54439.00	
C. Equipment and Permanent Facilities							105150.00	0.0
D. Expendable Supplies							8630.00	0.0
E. Travel								
Domestic Travel							19890.00	0.0
G. Other Costs								
Consultants, Etc.							3000.00	0.0
Miscellaneous							8000.00	0.0
Subtotal								
							11000.00	
H. Total Direct Costs							199109.00	10753.00
I. Indirect Costs							14644.00	3826.50
J. Total Costs							213753.00	14579.50

## University of Utah

## A. Salaries and Wages

	1/10 - Man Month			N.S.F.	Grantee
	Cal	Acad	Su		
1. Senior Personnel					
1. Faculty Associate	0	0	10	0	3
2. Other Personnel					
2 Graduate Students	0	90	60	0	0
1 Secretarial-Clerical	6	0	0	0	0
Subtotal				8000.00	
B. Fringe Benefits				780.00	48.00
D. Expendable Supplies				900.00	0.0
E. Travel					
Domestic Travel				600.00	0.0
H. Total Direct Costs				10280.00	528.00
I. Indirect Costs, 60.00 Per Cent of A.				4799.99	287.99
J. Total Costs				15079.99	815.99



## Utah State University

	N.S.F.	Grantee
F. Publications	2000.00	0.0
G. Other Costs		
Computer Costs	60000.00	0.0
Communications Costs	5000.00	0.0
Consultants, etc.	12900.00	0.0
Contracts	15000.00	0.0
Miscellaneous	4900.00	0.0
Subtotal	97800.00	
H. Total Direct Costs	644646.20	40075.30
I. Indirect Costs	139754.99	19837.68
J. Total Costs	784401.19	59913.98

## University of Wyoming

## A. Salaries and Wages

	1/10 - Man Months N.S.F. Grantee						
	Cal	Acad	Su	Cal	Acad	Su	Grantee
1. Senior Personnel							
1 Faculty Associate	0	0	0	10	0	0	1417.00
2. Other Personnel							
1 Graduate Student	60	0	0	0	0	0	3864.00
Subtotal							3864.00
B. Fringe Benefits							98.00 41.90
D. Expendable Supplies							1500.00 0.0
E. Travel							3425.00 0.0
Domestic Travel							
H. Total Direct Costs							8887.00 1458.90
I. Indirect Costs, 41.00% of A							1584.23 580.96
J. Total Costs							10471.23 2039.86

## U. S. Public Health Service

## A. Salaries and Wages

	1/10 - Man Months				
	N.S.F.		Grantee		
	Cal	Acad	Su	Cal	Su
1. Senior Personnel					
1 Faculty Associate					
D. Expendable Supplies					
E. Travel					
Domestic Travel					
H. Total Direct Costs					
I. Indirect Costs, 0.0 % of A					
J. Total Costs					

500.00 300.00

375.00 0.0

875.00 300.00

0.0 0.0

875.00 300.00



## Overall Budget for Program

## A.. Salaries and Wages

A.. Salaries and Wages									
1/10 - Man Months									
N.S.F. Grantee									
Cal Acad Su Cal Acad Su									
1. Senior Personnel									
1 Principal Investigator									
142 Faculty Associates									
2. Other Personnel									
11 Research Associates, Postdoctoral									
1 Non-Faculty Professional, Doctoral									
110 Graduate Students									
13 Non-Faculty Professionals, Other									
Pre-Baccalaureate Students									
20 Secretarial-Clerical									
26 Technical									
Hourly Labour									
Subtotal									
B.. Fringe Benefits									
C. Equipment and Permanent Facilities									
D. Expendable Supplies									
E. Travel									
Domestic Travel									
International Travel									
Subtotal									
F. Publications									

964463.50

203002.75



Overall Budget for Program

	N.S.F.	Grantee
G. Other Costs		
Computer Costs	65100.00	0.0
Communication Costs	7000.00	0.0
Consultants, Etc.	19900.00	1000.00
Miscellaneous	16100.00	0.0
Contracts	15000.00	0.0
Subtotal		123100.00
H. Total Direct Costs	2002241.97	249315.49
I. Indirect Costs	437850.24	92476.19
J. Total Costs	2440092.21	340792.18

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